# ARTICLE VII.

## RESOURCE PROTECTION AND LANDSCAPING REQUIREMENTS

### DIVISION 7000. PURPOSE

The intent of this Article is to provide standards for the protection of natural resources (before, during and after the development process) and the efficient integration of new development into the community.

### DIVISION 7100. RESOURCE PROTECTION AND SITE PERFORMANCE STANDARDS

Resource protection and site performance standards shall apply to all subdivisions and development in all districts, thereby ensuring that the desired character of Williamson County is preserved.

The standards in this Article both protect all natural resources and require provision of bufferyards and landscaping in order to further protect and enhance the natural environment in Williamson County. Sections 7100 through 7230 specify the environmental protection standards applicable to selected natural resources, as well as other protection standards designed to control specific resource problems such as stormwater runoff or erosion. By implementing this Article and the site capacity regulations imposed by Section 5210, nuisances that might infringe on neighbors' ability to enjoy their property are avoided.

### SECTION 7110. RESOURCES

The following natural resources shall be protected as required in this Section: floodplains, mature woodlands, young woodlands, drainageways, slopes, slippage soils, sinkholes, hilltops, and ridgetops.

### SECTION 7111. AREAS OF SPECIAL FLOOD HAZARD/FLOODPLAINS:

A. Statement of Purpose. It is the purpose of this Section to promote the public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas.

1. Restrict or prohibit uses which are vulnerable to water or erosion hazards, or which cause damaging increases in erosion, flood heights, or velocities;

2. Require that uses vulnerable to floods, including community facilities, be protected against flood damage;

3. Control the alteration of natural floodplains, stream channels, and natural protective barriers which accommodate flood waters;

4. Control filling, grading, dredging and other development which may increase erosion or flood damage, and;



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5. Prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards.

B. Basis for Establishing the Areas of Flood Hazard. The areas of special flood hazard identified on the Williamson County, Tennessee, Federal Emergency Management Agency, Flood Insurance Study and Flood Insurance Rate Maps, [Community Number 470204- Map Panel Numbers 47187C0015F, 47187C0020F, 47187C0036F, 47187C0037F, 47187C0038F, 47187C0039F, 47187C0045F, 47187C0064F, 47187C0070F, 47187C0086F, 47187C0088F, 47187C0089F, 47187C0130F, 47187C0135F, 47187C0140F*, 47187C0145F*, 47187C0151F, 47187C0152F, 47187C0153F, 47187C0154F, 47187C0157F, 47187C0159F, 47187C0160F, 47187C0165F, 47187C0170F, 47187C0180F, 47187C0181F, 47187C0182F, 47187C0183F, 47187C0184F, 47187C0190F, 47187C0192F, 47187C0195F, 47187C0203F, 47187C0204F, 47187C0205F, 47187C0209F, 47187C0212F, 47187C0213F, 47187C0214F, 47187C0220F, 47187C0230F, 47187C0235F, 47187C0240F, 47187C0245F, 47187C0255F*, 47187C0265F*, 47187C0280F*, 47187C0285F, 47187C0305F*, 47187C0310F, 47187C0315F*, 47187C0320F*, 47187C0330F, 47187C0335F, 47187C0340F, 47187C0343F, 47187C0345F, 47187C0355F, 47187C0360F, 47187C0365F, 47187C0370F, 47187C0380F, 47187C0385F, 47187C0390F, 47187C0395F, 47187C0405F*, 47187C0415F*, 47187C0435F, 47187C0455F, 47187C0460F, 47187C0480F*, and 47187C0485F*] with the effective date of September 29, 2006, along with all supporting technical data and any subsequent amendments or revisions, are adopted by reference and declared to be a part of this Ordinance
(* denotes panels not printed).

C. Warning and disclaimer of liability. The degree of flood protection required by this Ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This Section does not imply that land outside the flood hazard areas or uses permitted within such areas will be free from flooding or flood damages. This Ordinance shall not create liability on the part of Williamson County, Tennessee or by any officer or employee thereof for any flood damages that result from reliance on this Section or any other Section of the Williamson County Zoning Ordinance or any administrative decision lawfully made in accordance with this Section or any other Section of the Williamson County Zoning Ordinance.

D. Designation of County Engineer. The County Engineer is hereby appointed to administer and implement the provisions of Section 7111.

E. Uses in Area of Special Flood Hazard

1. Permanent Open Space. All areas of special flood hazard shall be preserved as permanently protected open space. No uses or improvements other than those permitted herein shall be permitted in any areas of special flood hazard as defined by this Ordinance.



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2. Permitted Uses. The following uses are permitted within the area of special flood hazard as a matter of right:

a. All uses which are permitted in Required Open Spaces by Section 4003.

b. All uses which are classified as Agriculture or Outdoor Institutional in Section 4101.A. through 4101.E. and Sections 4103.A. and 4103.D. The raising of tree and plant stock for clear cutting or nursery uses shall also be permitted. No structures appurtenant to such activities are allowed.

c. Bridges, approaches to bridges, boat-launching ramps, boat docks, piers, marinas, picnic shelters, boat houses, driveways serving a single family, and off-street parking:

1. No encroachments, including fill material, new structures or substantial improvements shall be located within the areas of special flood hazard, unless certification by a registered professional engineer is provided demonstrating that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood at any point within the community. The engineering certification should be supported by technical data that conforms to standard hydraulic engineering principles.

2. Additionally boat docks, piers, marinas, picnic shelters, boat houses, and off-street parking shall provide certification from a registered professional engineer that such structures are designed to withstand the forces exerted at the 100-year flood event at the proposed location.

d. Lots of Record Existing Prior to April 1,1981:

For lots of record existing prior to the effective date of the Federal Emergency Management Agency (FEMA) maps of April 1, 1981, the County Engineer is authorized to allow uses in areas of special flood hazard provided that the following conditions are met:

(1) The County Engineer must find that there is no other appropriate building site outside the area of special flood hazard on the lot of record; and

(2) All provisions and requirements of Section 7111.F and Section 7111.G. herein shall apply.



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F. Construction Stage.

1. Within and adjacent to unnumbered A zones, where flood elevation data are not available, the County Engineer or Designee shall record the elevation of the lowest floor on the zoning certificate. In no event shall there be an encroachment, including but not limited to fill material or structures, into the Waterway Natural Area. The elevation of the lowest floor for i) residential and non-residential construction or substantial improvement shall be elevated to a level of at least three (3) feet above the highest adjacent grade and ii) manufactured home placement or substantial improvement shall be elevated and supported by reinforced piers (or other foundation elements) at least three (3) feet above the highest adjacent grade. Williamson County Geographic Information System topographic maps shall be utilized. Field verified topography, as determined by a registered professional engineer or registered land surveyor, may also be used. USGS Quadrangle maps may be utilized when no more detailed reference exists to establish reference elevations.

2. Within and adjacent to all flood zones where base flood elevation data are utilized, the County Engineer or Designee shall require that upon placement of the lowest floor, or flood-proofing by whatever construction means, whichever is applicable, it shall be the duty of the permit holder to submit to the County Engineer or Designee a certification of the elevation of the lowest floor, or flood-proofed elevation, whichever is applicable, as built, in relation to mean sea level. Said certification shall be prepared by, or under the direct supervision of, a registered land surveyor, registered professional engineer, or registered architect and certified by same. When flood-proofing is utilized for a particular building, said certification shall be prepared by, or under the direct supervision of, a license professional engineer or registered architect and certified by same. Any work undertaken prior to submission of the certification shall be at the permit holder's risk. The County Engineer or Designee shall review the floor elevation survey data submitted. Deficiencies detected by such review shall be corrected by the permit holder immediately and prior to further progressive work being permitted to proceed. Failure to submit the survey or failure to make said corrections required hereby, shall be cause to issue a stop-work order for the project.

G. Provisions for Flood Hazard Reduction

1. For purposes of this Section 7111.G., the term "New Construction" shall mean any structure for which the start of construction commenced on or after July 11, 2005. The term also includes any subsequent improvements to such structure.

2. General Standards

In all flood prone areas the following provisions are required:



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a. New construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure;

b. Manufactured homes shall be elevated and anchored to prevent flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This standard shall be in addition to and consistent with applicable state requirements for resisting wind forces;

c. New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage;

d. New construction or substantial improvements shall be constructed by methods and practices that minimize flood damage;

e. Electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities shall be designed and/or located so as to prevent water from entering or accumulating within the components during the conditions of flooding;

f. New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;

g. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters;

h. On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding;

i. Any alteration, repair, reconstruction or improvements to a building which is in compliance with the provisions of this Section, shall meet the requirements of "new construction" as contained in this Section; and,

j. Any alteration, repair, reconstruction or improvements to a building which is not in compliance with the provision of this Section, shall be undertaken only if said non-conformity is not extended.

3. Specific Standards

These provisions shall apply to all areas of special flood hazard as provided herein:

In and adjacent to all areas of special flood hazard where base flood elevation data have been provided, including A zones, A1-30 zones, AE zones, AO zones, AH



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zones and A99 zones, and where a regulatory floodway has been provided, as set forth in Section 7111.B., the following provisions are required:

a. Residential Construction. New construction or substantial improvement of any residential building (or manufactured home) shall have the lowest floor, including basement elevated no lower than one (1) foot above the base flood elevation. Should solid foundation perimeter walls be used to elevate a structure, openings sufficient to facilitate the unimpeded movements of flood waters shall be provided in accordance with Section 7111.G.2.c.

b. Non-residential Construction. New construction or substantial improvement of any commercial, industrial, or non-residential building shall have the lowest floor, including basement, elevated no lower than one (1) foot above the base flood elevation. Buildings located in all A-zones may be flood-proofed in lieu of being elevated provided that all areas of the building below the required elevation are watertight with walls substantially impermeable to the passage of water, and are built with structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy. A registered professional engineer or registered architect shall certify that the standards of this subsection are satisfied. Such certification shall be provided to the County Engineer as set forth in Section 7111.F.2.

c. Elevated Building. New construction or substantial improvements of elevated buildings that include fully enclosed areas formed by foundation and other exterior walls below the base flood elevation, shall be designed to preclude finished living space and designed to allow for the entry and exit of flood waters to automatically equalize hydrostatic flood forces on exterior walls.

(1) Designs for complying with this requirement must either be certified by a registered professional engineer or registered architect or meet the following minimum criteria:

A. Provide a minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding;

B. The bottom of all openings shall be no higher than one foot above grade; and

C. Openings may be equipped with screens, louvers, valves or other coverings or devices



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provided they permit the automatic flow of floodwaters in both directions.

(2) Access to the enclosed area shall be the minimum necessary to allow for parking of vehicles (garage door) or limited storage of maintenance equipment used in connection with the premises (standard exterior door) or entry to the living area (stairway or elevator); and

(3) The interior portion of such enclosed area shall not be partitioned or finished into separate rooms in such a way as to impede the movement of floodwaters and all such petitions shall comply with the provisions of Section 7111.G.2.

d. Standards for Manufactured Homes and Recreational Vehicles.

(1) All manufactured homes placed, or substantially improved, on individual lots or parcels, in expansions of existing manufactured home parks or subdivisions, or in substantially improved manufactured home parks or subdivisions, must meet all the requirements of new construction, including elevations and anchoring.

(2) All manufactured homes placed or substantially improved in an existing manufactured home park or subdivision must be elevated so that:

A. The lowest floor of the manufactured home is elevated no lower than one (1) foot above the level of the base flood elevation on a permanent foundation;

B. The manufactured home must be securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement; and,

C. In or outside of an existing or new manufactured home park or subdivision, or in an expansion of an existing manufactured home park or subdivision, on which a manufactured home has incurred "substantial damage" as a result of a flood, any manufactured home placed or substantially improved must meet the standards of Section 7111.G.2.d.



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(3) All recreational vehicles placed on sites must either:

A. Be on the site for fewer than 180 consecutive days;

B. Be fully licensed and ready for highway use; or

C. The recreational vehicle must meet all the requirements for new construction, including anchoring and elevation requirements of Sections 7111.G.2.d.(1) or 7111.G.2.d.(2)A. or (2)B above.

A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices and has no permanently attached structures.

In all areas of special flood hazard where base flood elevation data or floodway data have not been provided, the provisions of Section 10130.C.8. shall be utilized for all requirements relative to the base flood elevation or floodways.

4. Standards for Areas of Special Flood Hazard Zones A1-30 and AE With Established Base Flood Elevation But Without Floodways Designated.

Located within and adjacent to the areas of special flood hazard established in Section 7111.B. where streams exist with base flood data provided but where no floodways have been provided, (zones A1-30 and AE) the following provisions apply:

a. No encroachments, including fill material, new structures or substantial improvements shall be located within areas of special flood hazard, unless certification by a registered professional engineer is provided demonstrating that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood at any point within the community. The engineering certification should be supported by technical data that conforms to standard hydraulic engineering principles.

b. New construction or substantial improvements of buildings shall be elevated or flood-proofed to elevations established in accordance with Section 7111.G.2 .

5. Standards For Areas of Shallow Flooding (AO and AH Zones).

Located within the areas of special flood hazard established in Section 7111.B. are areas designated as shallow flooding areas. These areas have special flood

hazards associated with base flood depths of one to three feet (1' - 3') where a clearly defined channel does not exist and where the path of flooding is unpredictable and indeterminate; therefore, the following provisions apply:

a. All new construction and substantial improvements of residential buildings shall have the lowest floor, including basement, elevated to the depth number specified on the Flood Insurance Rate Map, in feet, above the highest adjacent grade. If no depth number is specified, the lowest floor, including basement, shall be elevated, at least two (2) feet above the highest adjacent grade.

b. All new construction and substantial improvements of nonresidential buildings shall:

(1) have the lowest floor, including basement, elevated to the depth number specified on the Flood Insurance Rate Map, in feet, above the highest adjacent grade. If no depth number is specified, the lowest floor, including basement shall be elevated at least two (2) feet above the highest adjacent grade; or

(2) together with attendant utility and sanitary facilities be completely flood-proofed to or above that level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic or hydrodynamic loads and effects of buoyancy.

c. Adequate drainage paths shall be provided around slopes to guide floodwaters around and away from proposed structures.

6. Standards For Areas Protected By Flood Protection System (A-99 Zones).

Located within the areas of special flood hazard established in Section 7111.B. are areas of the 100-year flood protected by a flood protection system which is under construction but where base flood elevations and flood hazard factors have not been determined. With these areas (A-99 Zones) the following provisions apply:

All provisions of Sections 7111.D., 7111.F., 7111.G.1., 7111.G.8. and 10130.C. shall apply.



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7. Standards For Areas of Special Flood Hazard With Established Base Flood Elevation and with Floodways Designated.

Located within the areas of special flood hazard established in Section 7111.B. where streams exist with base flood data and floodways provided, the following provisions apply:

a. No encroachments, including fill material, new construction, substantial improvements or other developments shall be located within designated floodways, unless certification by a registered professional engineer is provided demonstrating that the cumulative effect of the proposed encroachments or new development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood during the occurrence of the base flood discharge at any point within the community. The engineering certification should be supported by technical data that conforms to standard hydraulic engineering principles.

b. If Section 7111.G.6. above is satisfied, new construction or substantial improvements of buildings shall be elevated or flood-proofed to elevations established in accordance with Section 7111.G.2.

8. Standards For Unmapped Streams.

Located within the Williamson County planning region are unmapped streams where areas of special flood hazard are neither indicated nor base flood data or floodways have been provided. Adjacent to such streams where drainage areas are greater than one square mile the following provisions shall apply:

a. In areas adjacent to such unmapped streams, no encroachments including fill material or structures shall be located within an area of at least equal to twice the width of the stream along each side of the stream, unless certification by a registered professional engineer is provided demonstrating that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood at any point within the locality. In no event shall there be an encroachment, including but not limited to fill material or structures, into the Waterway Natural Area. The elevation of the lowest floor shall be determined as the measurement of the lowest floor of the building and the highest adjacent grade. Williamson County Geographic Information System topographic maps shall be utilized. Field verified topography, as determined by a registered professional engineer or registered land surveyor, may also be used. USGS Quadrangle maps may be utilized when no more detailed reference exists to establish reference elevations.



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b. When flood elevation data is available, new construction or substantial improvements of buildings shall be elevated or flood-proofed to elevations established in accordance with Sections 7111.F.

9. Standards for Subdivision Proposals.

Subdivision proposals and other proposed new development, including manufactured home parks or subdivisions, shall be reviewed to determine whether such proposals will be reasonably safe from flooding. If a subdivision proposal or other proposed new development is in a flood-prone area, any such proposals shall be reviewed to ensure that:

a. All subdivision proposals shall be consistent with the need to minimize flood damage.

b. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize or eliminate flood damage.

c. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards.

d. Base flood elevation data shall be provided for subdivision proposals and other proposed development (including manufactured home parks and subdivisions) which is greater than fifty lots and/or five acres.

SECTION 7112. MATURE WOODLANDS; YOUNG WOODLANDS

A. Protection Levels

The level of protection provided woodlands in all developments shall be in accordance with this Section. Mature woodlands shall be provided with seventy (70) percent protection and young woodlands with fifty (50)* percent protection except as provided herein under mitigation. That is, on each development, the appropriate level of protection is to be provided by leaving those wooded areas undisturbed.

In residential developments, wooded areas shall be included in the open spaces. In commercial developments, wooded areas shall be part of the landscaped surface area. Section 5210 makes adjustments to gross density requirements to ensure protection on sites having large areas in this resource.

B. Development Pads

When a lot size is forty-thousand (40,000) square feet or more and the presence of young woodlands and/or mature woodlands results in a lowering of the density of the site (a positive value in Step 5 of Section 5210), a zero (0) may be used for acreage figure of



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mature and/or young woodlands in Section 5210, provided the site plan demonstrates that the desired level of protection is ensured using the provisions of the Section:

1. All right-of-way shall be included as part of the development pad. Woodland areas within any rights-of-way shall not be counted as resource protection area.

2. For each lot, a development pad shall be shown on the final plat. The size of the pad shall be limited by the minimum required level of protection for the resource for the entire parcel. A deed restriction shall appear on the plat indicating that no clearing shall be permitted beyond the pad area of the lot.

   Commentary: For areas defined as resource protection areas, the sum of all development pad and right-of-way areas shall be within the limits set by the minimum resource protection levels.

3. All drives, septic tanks, tile fields (including reserve tile fields), utility lines, and buildings shall define the development pad area. The development pad's maximum size shall be determined by the following:

   a. From the Building Foundation. The dimensions of the pad may extend 20 to 40 feet beyond the foundation, depending on the type of concrete application used in construction. If the concrete is pumped in from an outside source or location, the maximum distance to the edge of the pad area shall be twenty (20) feet from the foundation. If the concrete is trucked directly to the site and poured directly from the truck, the maximum distance to the edge of the pad area shall be forty (40) feet from the foundation.

   b. Other Boundaries. For the septic system area, utility lines, and roads, a maximum distance to the edge of the pad shall be five (5) feet from the outermost line or edge of the septic system area, utility line trench, or road pavement (see following Illustration).

4. All grading, fill storage, and ground disturbance shall be strictly confined to the development pad area.

5. During construction, the areas to be protected shall be fenced or roped off from the development pad area in a secure manner in order to limit the intrusion of construction equipment.



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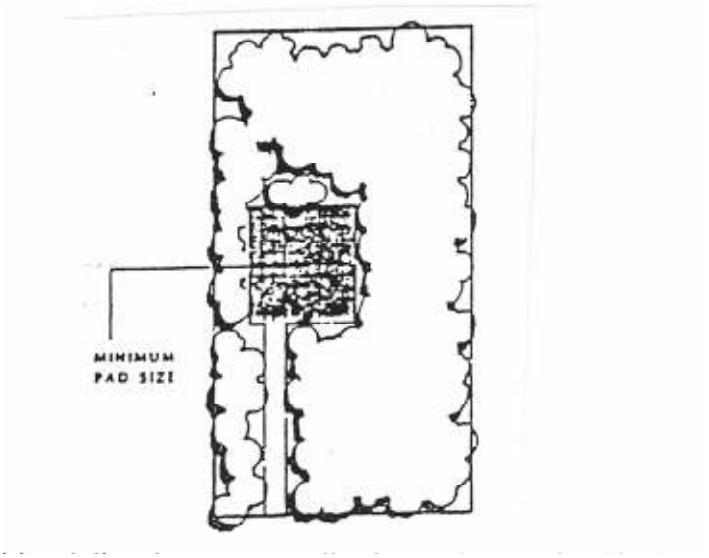
6. Bond Requirement. A bond shall be posted with the County in the amount of four thousand dollars ($4,000) for each acre (or portion thereof) of land in which trees are to be preserved. The bond shall be applied to the replacement of any trees which should die within three (3) years of the completion of construction.




C. Mitigation

A certain amount of additional disturbance to woodlands may be permitted in the developer mitigates the disturbance according to the provisions of this Subsection.

1. The level of protection given woodlands shall not fall below fifty-five (55) percent for mature forest, or twenty-five (25) percent for young woodlands.

2. The land on which the mitigation is to take place shall be deed restricted as permanent open space with a protective easement running in favor of the County.

3. All mitigation shall require the replacement of wood-lands that have been disturbed with new woodlands using the following number of plants per acre:

4 canopy trees, minimum 4 inch caliper_*
8 canopy trees, minimum 2.5 inch caliper_*
60 canopy trees, minimum 5 feet high whip
20 understory trees, minimum 5 feet high whip
50 shrubs, minimum 11 inches high

*Four inch caliper canopy trees may be substituted with 12 foot high evergreen trees and 2.5 inch caliper canopy trees may be substituted with 6 foot high evergreen trees.



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4. The species of plants used in mitigation should be similar to those to be destroyed. Suggested canopy trees, understory trees, evergreen trees, and shrubs are listed in Section 7440.

## SECTION 7113. DRAINAGEWAYS

### A. Protection Level

Fifty (50) percent of the drainageway shall be maintained as open space. Drainageways shall be protected in such a way that the entire length can continue to function and be used for drainage purposes.

### B. Design Standards

New developments shall be designed so that there is continuous strip of open space along the course of the drainageway. Since the purpose of this protection is to preserve the natural storm drainage system, it is logical that drainage improvements and retention or detention structures would be located in these areas. In order to permit this, the open space portions of the drainageway areas may be disturbed, but only if such construction is part of an approved stormwater system that meets the following criteria:

1. The time of concentration of stormwater flows remains unchanged or is lengthened;

2. Stormwater and groundwater storage capacity are unchanged or increased;

3. Vegetation is installed;

4. The resultant new drainageway has less velocity than preexisted or it reduces steambank erosion through the provision of erosion control measures.



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SECTION 7114. SLOPES

A. Protection Level

Areas that are in excess of fifteen (15) percent slope shall be protected as follows:

| Slope | Percent of Site to Remain Undisturbed |
|---|---|
| 15-25% | 40 |
| 26-35% | 75 |
| 36% or more | 95 |

A. Design Standards

All slopes that are not in woodland shall be reforested using the plant requirements of Section 7340, except areas classified as old field succession.

SECTION 7115, SLIPPAGE SOILS

A. Protection Level

Slippage soils are unstable and subject to movement. They can cause substantial property damage. Depending on their location in the environment, two different protection levels are required. Slippage soils on a slope of ten (10) percent or more shall receive ninety-five (95) percent protection. In other instances, these soils shall receive a twenty-five (25) percent protection level.

B. Design Standards

All slippage soil areas shall conform to the following design standards:

1. The developer shall hire a qualified soil scientist to identify all areas of Delrose soil present on the subject property. The soil scientist shall determine the extent and depth of this soil on the site.

2. The developer shall hire a geotechnical engineer who shall meet the following requirements:

   a. The engineer may be selected from a list maintained by the Planning Department, or any other qualified geotechnical engineer may be selected. The developer shall submit the qualifications of an engineer not listed by the Planning Commission to the Commission for their approval.

   b. The engineer shall prepare a report identifying the location, character, and extent of slippage soil areas. The report shall:



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(1) contain a design for proper drainage and construction of development;

(2) identify areas that require special design treatments for individual lots; and

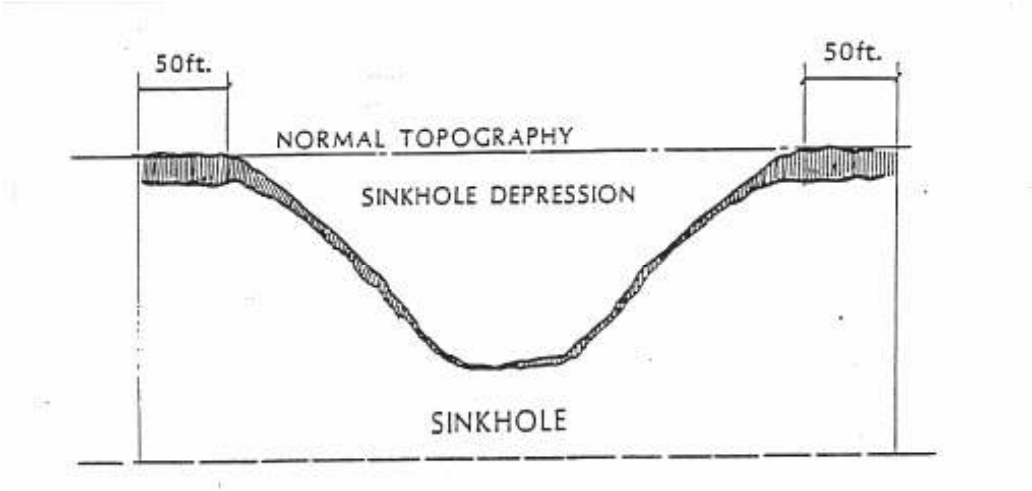
(3) provide a map and accompanying acreage calculations which demonstrate the requirements of Section 7115 A. are being met.

c. Development on all individual lots identified in the report required above shall be designed by a qualified geotechnical engineer. The design shall be in compliance with the geotechnical report.

d. The development shall be supervised and certified upon completion by a geotechnical engineer in order to ensure that all development is in compliance with the approved design.

SECTION 7116. SINKHOLES

A. Designation. These features are formed from the action of rain, stormwater runoff, and ground water on limestone strata. They have the potential to become larger in terms of both area and depth. (See the following illustration.)



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B. Protection Level. One hundred (100) percent of the sinkhole shall be protected as permanent open space.

C. Design Standards

1. The natural runoff rate to sinkholes shall be maintained or reduced. Additional runoff generated by development in the watershed of a sink-Hole shall be retained and redirected to surface runoff channels.

2. During construction, all swales leading to sinkhole shall have effective sedimentation barriers erected to prevent sediment from reaching the sinkhole.

SECTION 7117. HILLTOPS

A. Protection Level
Development on hilltops increases runoff, erosion, sedimentation, and the potential for slop destabilization. In addition, hilltops are the most visible natural features in the County; development on hilltops can detract from these natural features. As a result, a minimum of eight (80) percent of the hilltop area shall be maintained as open space.

B. Design Standards

1. Buildings located on a hilltop shall be a maximum of fifteen (15) feet in height, or half the canopy height of surrounding vegetation, whichever is greater.

2. Clearing activity shall be restricted to the central area of the hilltop except as required for access.

3. Stormwater drainage shall be conveyed to the bottom of the hill by an erorosion-resistant channel. If slippage soils are located downslope of the hilltop, then curtain drains shall be installed in addition to the stormwater channel dewatering device.

SECTION 7118. RIGETOPS

A. Protection Levels

Development of ridgetops increases the potential for downslope erosion, sedimentation, and soil destabilization. These conditions require that a minimum of fifty (50) percent of the ridgetop area be maintained as open space.



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B. Design Standard

1. Buildings located on the outer edges of ridgetops shall be a maximum of fifteen (15) feet in height, or less than one half the canopy height of the surrounding vegetation, whichever is greater. If a second, interior row of development occurs, then the maximum building height shall be limited to twenty-five (25) feet, or less than one half the canopy height of surrounding vegetation, whichever is greater.

2. The permitted clearing shall occur near the center of the ridgetop except as required for access.

3. Stormwater drainage shall be conveyed to the bottom of the ridge by an erosion-resistant channel. If slippage soils are located downslope of the ridgetop, then curtain drains shall be installed in addition to the stormwater channel dewatering device.

SECTION 7119. MINED AREAS

Soil borings shall be taken in previously mined areas to determine the depth for suitable foundation levels. A note stating this information shall be placed in the deed pertaining to any previously mined area. In addition, all such areas shall be regarded to ensure positive surface drainage and eliminate any areas of ponding.

SECTION 7120. HISTORIC SITES

A. All land within a historic site shall be protected. There are several possible situations regarding land tenure and development in which a historic site may be found. They type of protection provided by this Ordinance is specific to each of these situations. The following subsections define the regulatory process and the conditions under which it operates. (See definition of historic site, Division 2300.)

1. Situation A

A parcel located within a designated historic site, containing one or more nonhistoric structure(s), which is under separate ownership (as of the date of adoption of this Ordinance) from another parcel located within said historic structure place. Proposed changes to the parcel which does not contain the historic structure(s) could include:

a. significant changes, alterations or additions to the exterior of any existing structure(s); or
b. the replacement of an existing structure, will be considered conditional uses.



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Any proposed changes shall be reviewed by the Planning Commission which shall decide whether to approve or deny the proposed change(s). This decision shall be based on the compatibility of the proposed change with the historic structure or place. The Planning Commission may attach conditions as part of a recommended approval. The conditions may address the appearance, placement, materials comprising, or any other aspect of the proposed change considered necessary to protect the integrity of the historic site. In doing this the Planning Commission may (if it deems necessary) employ, at the developer's expense a person with an expertise in historic preservation to advise it.

2. Situation B

A parcel located within a designated historic site, containing no structure, which is under separate ownership (as of the date of adoption of this Ordinance) from a parcel located within said historic site containing a designated historic structure or place, which cannot be subdivided to create additional buildable lots located outside the boundaries of the historic site. These sites, provided they are otherwise buildable under the provisions of this Ordinance, shall be permitted to either transfer their development rights pursuant to Section 5270 or to build structure(s) on the lot that are otherwise permitted by the zoning district. Such proposed development shall reviewed as conditional uses as per Subsection A, above.

3. Situation C

A parcel under separate ownership from a parcel as of the date of the adoption of this Ordinance, containing the historic structure or place, which can be subdivided to create additional buildable lots outside the boundaries of the historic site.

The property shall be permitted to be subdivided into two or more buildable parcels. Depending on whether the land within the boundaries is vacant or has an existing structure, procedure shall follow and meet the provisions of Subsections A or B, above. The land on the property beyond the boundaries of the historic site shall not be governed by the provisions of this Subsections.

4. Situation D

All land owned as single parcel or held in common ownership with as the date of adoption of this Ordinance.
These parcels shall be governed by the provisions of Section 5210, and 5270.



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B. Architectural Review. Where required by situations A and C the Planning Commission's architectural review of additions or modifications to the historic structure, existing structures or a new structure within the historic site shall be based on the following standards:

1. Historical Correctness of Historic Structure or Out Buildings. Any remodeling or additions to the exterior of the historic structure shall conform to the historical style and context of the structure. Any elements that had previously been added or altered which degrade the structure shall be removed or made to conform to the appropriate style.

2. Architectural Details. All architectural details shall conform to the style of the period in color, texture, materials, and scale.

3. Existing Nonhistoric Buildings. The character of these buildings should be made to blend in and not contrast with the historic structures. In doing so the Commission should seek to eliminate sharp contrasts through minor architectural changes but need not imitate the architectural style.

4. New Buildings. New buildings should be in keeping with the architectural and spacial feeling of the historic building. The exact style need not be replicated, but massing, form, materials, color and the detailing should be such as to present a unified character.

5. Additions or new buildings shall be in keeping with the scale of the historic building.

6. Landscaping. Landscaping should be used to screen contrasting buildings or to frame the historic buildings. The landscape should be as close to its original condition as possible.

C. Bufferyard Requirements. Development on property adjacent to a designated historic site must provide a buffer with an opacity of 1.00 Refer to Division 7400.

D. All homes, stone walls, cemeteries, archaeological site and other vestiges of early human habitation on parcels for development shall be identified and plans for their utilization provided. Additionally, if the site contains important historic or prehistoric sites, the State Archaeology Department must be notified before any disturbance of the site takes place to determine if research or recordation or other preservation activity will be required.



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E. List of Historic Sites. The following are designated historic sites under the provisions of this Ordinance:

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| 1. 37. Williamson Leaton Hse; | Hillsboro Road, vicinity of Franklin, Willie R. Hulme, Box 5011, Hillsobor Road, Franklin, Tennessee 37064 |
| 2. 41. John Motheral Hse: | Moran Road, vicinity of Franklin, John L. Lackey, Rt. 3 Moran Road, Franklin, Tennessee 37064 |
| 3. 44. Knight-Moran Hse: | Ann Elizabeth Moran, Route 11, Old Natchez Trace, Franklin, Tennessee 37064 |
| 4. 46. Stoley Davis Hse: | Old Natchez Trace, vicinity Of Franklin, E.A. Covington, Jr., Rt. 11 Old Natchez Trace, Franklin, Tennessee 37064 |
| 5. 55 Thomas Moore Hse: | Del Rio Pike, vicinity of Franklin, Livingfield More, Rt. 7 Del Rio Pike, Franklin, Tennessee 37064 |
| 6. 57. Davis House: | Del Rio Pike, vicinity of Franklin, Meadowview Associates, Del Rio Pike, Franklin, Tennessee 37064 |
| 7. 64. G. W. Mayberry Hse: | 151 Franklin Road, Franklin Alva Bethurum, 1325 Carters Creek Pike, Franklin, Tenn. 37064 |
| 8. 69. Thomas Shute Hse: | Franklin Road, vicinity of Franklin, J.M. Adkerson, Route 5 Box 441, Nashville Pike, Franklin, Tenn. 37064 |
| 9. 92. John Collins Hse: | Hillsboro Road, vicinity of Franklin, Harlon – Tenn Inv. Ltd. II. 5510 Six Forks, Suite 200 Raleigh, NC 37609 |
| 10. 107. John Winstead Hse: | Concord Road, vicinity of Brentwood, William J. Edmondson, Route 1, Brentwood, Tennessee 37027 |
| 11. 109. Daniel McMahan Hse: | Franklin Road, vicinity of Franklin, Dunklin C. Bowman, 712 Bowling Ave. Nashville, Tennessee 37215 |



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| 12. 139. James Sayers Hse: | Splitlog Road, vicinity of Franklin, Stirton Oman, Jr., P.O. Box 146 Nashville, Tennessee 37202 |
| 13. 152. John Herbert Hse: | Clovercroft Road, vicinity of Franklin, Walter Morgan, Trustee, 210 Evelyn Ave., Nashville, Tennessee 37205 |
| 14. 153. Wilson House: | Clovercroft Road, vicinity of Franklin, Pegine Hedge, 367 Clovercroft Rd., Franklin, TN 37064 |
| 15. 166. William Johnson Hse: | Concord Road, vicinity of Franklin, Robert Mosley, Route 1 Box 290, Nolensville, Tennessee 37135 |
| 16. 170. George Pollard Hse: | Wilson Pike, vicinity of Franklin, J. Gil Fuqua, Rt. 5 Wilson Pike, Franklin, Tennessee 37064 |
| 17. 175. William King Hse: | Highway 96 East, vicinity of Franklin, Ben Chrisman, 3717 Hewlett Drive, Nashville, TN 37215 |
| 18. 184. Morton House: | Highway 41A, vicinity of Nolensville, James D. Ervin, Rt. 1 Horton Hwy, Nolensville, Tennessee 37135 |
| 20. 197. Jordan-Williams Hse: | Rocky Fork Road, vicinity of Nolensville, Charles Clark, Rt. 1 Box 137, Nolensville, Tennessee 37135 |
| 21. 204. Abram Glenn Hse: | McCanless Road, vicinity of Triune, Henry Allen, Rt. 1, Nolensville, TN 37135 |
| 22. 212. Joseph Scales Hse: | Cox Road, vicinity of Triune, W. Chriswell Freeman, P.O. Box 140478, Nashville, Tennessee 37214 |
| 23. 224. James Scales Hse: | Highway 31 A, Kirkland, G.G. McCord, Rt. 1, College Grove, Tennessee 37046 |



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| 24. 232. James Allison Hse: | Highway 31A, vicinity of College Grove, James A. Morel, Box 82 College Grove, Tennessee 37046 |
| 25. 233. William Ogilvie Hse: | Highway 31A, vicinity of College Grove, J.D. Ogilvie, Route 2, College Grove, Tennessee 37046 |
| 26. 234. Jim Wilhoite Hse: | Hwy 31A, vicinity of College Grove, Mrs. Della Corlette, Route 1, College Grove, Tennessee 37046 |
| 27. 243. John Russwurm Hse: | Spanntown Road, vicinity of Triune, H.L. Taylor, Spanntown Road, College Grove, Tennessee 37046 |
| 28. 247. Hartwell B. Hyde Hse: | Highway 96 East, vicinity of Triune, J.H. Ferguson, Rt. 2 Harpeth School Road, Franklin, TN 37064 |
| 29. 259. Newton Jordan Hse: | New Road, vicinity of Triune, Leta Pierce, Rt. 1 Box 71, College Grove, Tennessee 37046 |
| 30. 261. James Webb Hse: | Highway 31A, vicinity of Triune, Carl Thoni, Route 1, College Crove, Tennessee 37046 |
| 31. 270. John Crafton Hse: | North Chapel Rd., vicinity of Franklin, Ruth Flathe, Rt. 1, North Chapel Rd., Franklin, Tennessee 37064 |
| 32. 277. Beverly Toon Hse: | Arno Road, vicinity of Franklin, Sarah Lillard, Rt. 1 Arno Road, Franklin, Tennessee 37064 |



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| 33. 287. Mordecai Puryer Hse: | Lewisburg Pike, vicinity of Franklin, James Ogelsby, Lewisburg Pike, Franklin, Tennessee 37064 |
| 34. 289. Soloman Oden Hse: | Lewisburg Pike, vicinity of Franklin, William Stalcup, Lewisburg Pike, Franklin, Tennessee 37064 |
| 35. 291. Franklin Hardeman Hse: | Lewisburg Pike, vicinity of Franklin, Walter T. Bates, Rt. 2 Lewisburg Pike, Franklin, Tennessee 37064 |
| 36. 332. William A. Steele Hse: | Bethesda-Arno Road, vicinity of Franklin, W. H. Bond, Route 2, Thompson Station, Tenn. 37179 |
| 37. 340. Henry Pointer Hse: | Columbia Pike, vicinity of Spring Hill, Rob Roy Purdy, Route 1, Spring Hill, Tennessee |
| 38. 344. Tom Critz Hse: | Critz Lane, vicinity of Thompson Station, Thomas H. Evans, 19th Flr., Third National Bank, Nashville, Tennessee 37219 |
| 39. 345. Samuel B. Lee Hse: | Duplex Road, Duplex, John Lee, Box 153 Route 2, Spring Hill, Tennessee |
| 40. 354. Nathaniel Smithson Hse: | Peytonsville Road, Peytonsville, Ellis Mangrum, Route 1, Franklin, Tennessee 37064 |
| 41. 397. Thomas Brown Hse: | Old Natchez Trace, vicinity of Franklin, Patrick Cooper, Route 1, Old Natchez Trace, Franklin, TN 37064 |
| 42. 433. Beasley-Parham Hse: | Lick Creek Road, vicinity of Greenbrier, Ulyssess and Nolen Warf, Rt. 6, Lick Creek, Franklin, TN 37064 |
| 43. 540. Reams Hse: | Henpeck Lane, vicinity of Franklin, J.W. Cross 2019 Mallory Lane, Franklin, Tennessee 37064 |



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| 44. 636. John Pope Hse: | Evergreen Road, vicinity of Burwood, L.B. Grigsby, Route 1, Thompson Station, Tennessee 37179 |
| 45. 672. S. S. Morton Hse: | Carter Creek Pike, vicinity of Franklin, Margaret Lassing McCampbell, Rout 3, Franklin, Tenn. 37064 |
| 46. 675. Claiborne Kinnard Hse: | Carters Creek Pike, vicinity of Franklin, Robert Keenan, Rout West, Harpeth Road, Franklin, TN 37064 |
| 47. 676. H. W. Mayberry Hse: | Calvin Houghland, P.O. Box 22711, Nashville, Tennessee 37202 |
| 48. 693. John Neely Hse: | Sedberry Rd. vicinity of Thompson Station, Gerorge Beuerlein, Route 1, Thompson Station, Tenn. 37179 |
| 49. 708. Critz House: | Evergreen Rd. vicinity of Thompson Station, James Lazenby, Route 1, Thompson Station, Tenn. 37179 |
| 50. 732. Spencer Buford Hse: | Columbia Pk. vicinity of Thompson Station, Barbara Freeman, Columbia Pike, Thompson Station, TN 37179 |
| 51. 739. James P. Johnson Hse: | Columbia Pk. vicinity of Thompson Station, Joel Spaulding, Laurel Hill, Columbia Pk, Franklin, Tenn 37064 |
| 52. 752. Giddens Hse: | Thompson Station, Malcolm M. Gibbs, Route 1, Thompson Station, Tenn. 37179 |
| 53. 805. Martin House: | 5215 Seward Road, Brentwood, James Fowler, 5215 Steward Rd. Brentwood, Tennessee 37027 |
| 54. 901. Dr. Urban Owen Hse: | Highway 31A College Grove, David Jean, Route 1 Box 1, College Grove, Tenn. 37046 |



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| 55. 993. Samuel Glass Hse: | Highway 96 West, Franklin, Rebecca Gentry, Route 4 New Hwy 96, Franklin, Tennessee 37064 |
| 56. 996. Knights of Pythias Pavilion | Highway 96 West, Franklin, W.O. Carlisle, Jr., P.O. Box 67, Franklin, Tennessee 37064 |
| 57. 999. William Boyd Hse: | Boyds Mill Road, vicinity of Franklin, William T. Powell, Rt. 4 Boyd Mill Pike, Franklin, Tenn. 37064 |
| 58. 1004. Gray Hse: | Old Hillsboro Road, vicinity of Franklin, Fred Ryden, Old Hillsboro Road, Franklin, TN 37064 |
| 59. 1023. John Hunter Hse: | Leiper's Fork Road, vicinity of Franklin, Harriet McCullough, Rt. 6, Old 96, Franklin, Tenn. 37064 |
| 60. 1066. Stephens Hse: | Burke Hollow Road, vicinity of Franklin, Claude Stephens, Burke Hollow Road, Franklin, Tennessee 37064 |
| 61. 78. Liberty Hill School | Crow Cut Road, Liberty Hill, C.L. McGehee, Route 1, P.O. Box 60E, Fairview, Tenn. 37062 |
| 62. 79. College Grove Methodist Church | Highway 31A, College Grove Trustees, Route 1, College Grove, TN 37046 |
| 63. 80. Thompson's Store | Duplex Road, Duplex, James M. Thompson, Route 2, Franklin, Tennessee 37064 |
| 64. 634. Huff Store | Evergreen Road, Burwood, Kenneth Huff, Route 1, Thompson Station, Tenn. 37179 |
| 65. 670. Forest Hills School | Carters Creek Pike, vicinity of Franklin, Lewis B. Apple, Route 2 Carters Creek Ave., Franklin, Tennessee 37064 |
| 66. 764. Thompson Station Bank | Thompson Station, Cheryl Magli, Rt. 2, Highway 31N, Spring Hill, Tenn. 37174 |



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| 67. 903. Bank of College Grove | Highway 31A, College Grove, Roy Barker, P.O. Box 646, Franklin, Tennessee 37064 |
| 68. 932. Trinity Church | Wilson Pike, vicinity of Franklin, Trinity Methodist Church, Route 5, Franklin, Tennessee 37064 |
| 69. 990. Boyd's Mill Site | Boyds Mill Road, vicinity of Franklin, Edward Manning, Route 4, Franklin, Tennessee 37064 |
| 70. 1050. Liberty School | Liberty Church Road, vicinity of Brentwood, Liberty Methodist Church, Myrtle Ferris, Edmondson Pike, Brentwood, Tennessee 37027 |
| 71. James Johnston House | South of Brentwood on U.S. 31 |
| 72. Glen Echo | North of Franklin of U.S. 31 on Spencer Creek Road |
| 73. Homestead Manor | North of Thompson Station on U.S. 31 |
| 74. Bostick Female Academy | Highway 41A-College Grove, TN |
| 75. Meeting of the Waters | Northwest of Franklin on Del Rio Pike, Franklin vicinity |
| 76. Montpier (Nicholas Perkins House) | Northwest of Franklin on Old Hillsboro Pike, Franklin Vicinity |
| 77. Newton Cannon House | Taliaferro Road, College Grove vicinity |
| 78. Old Town Bridge | Old Natchez Trace, vicinity of Franklin, E.A. Covington, Jr., Route 11, Old Natchez Trace, Franklin, Tennessee 37064 |



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## DIVISION 7200. RESOURCE MANAGEMENT

The management of stormwater run-off and erosion control are governed by the provisions of the following Sections.

### SECTION 7210. SEPTIC DISPOSAL AREAS

A. The plat of subdivision shall designate the areas to be used for disposal fields. Prior to any earth moving permits being granted, the landowner or developer shall erect, and have inspected, fencing to protect the disposal area from disruption during the construction process.

B. If these areas are disturbed, the Department of Sewage Disposal Management may require the use of alternative systems. If an alternative system cannot be provided, the Department of Sewage Disposal Management may refuse an occupancy permit. A warning note to this effect shall be required on all plats.

C. Owners and developers are encouraged to require bonding by contractors to protect themselves against damage to the disposal area and to encourage greater care on the part of developers.

### SECTION 7220. STORMWATER RUNOFF

A. Each development shall provide for the on-site or off-site detention of excess stormwater runoff resulting from that development. For the purpose of this Ordinance, "excess stormwater runoff" shall include all increases in stormwater resulting from:

1. an increase in the impervious surface of the site, including all additions of buildings, roads, and parking lots;

2. changes in soil absorption caused by compaction during development;

3. modifications in contours, including the filling or draining of small depressional areas, alterations of drainageways, or regarding of slopes;

4. destruction of forest;

5. alteration of drainageways or installation of collection systems to intercept street flows or to replace swales or other drainageways;

6. the alteration of subsurface flows, including any groundwater dewatering or diversion practices such as curtain drains, compared with the site in its natural state.



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B. Limitation on Stormwater Runoff. No development shall cause downstream property owners, water courses, channels, or conduits to receive stormwater runoff from proposed developments at a higher peak flow rate, at higher volumes, or at higher velocities than would have resulted from the same storm event occurring over the site of the proposed development with the land in its natural, undeveloped condition. Flood events to be used in this determination will include the one through 100 year flood.

1. Undeveloped Condition: shall mean that all the natural retention areas and drainageways plus existing farm drainage tiles and highway drainage structures shall be included in the flow calculations.

2. Ground Cover: shall be considered to be meadow or grassland, with the exception that forested areas shall be treated as woodlands.

3. Channel or Drainageway Channel: shall mean the channels used to convey the one hundred (100) year drainage flows between successive retention facilities, to retention facilities, and from the property.

C. Storage Capacity. All stormwater storage facilities shall be designed with sufficient capacity to accommodate all runoff caused by the development in excess of the runoff which would have resulted from the site it left in its natural, undeveloped condition for the range of floods from the one through 100 year events.

D. Design Procedures. To maintain consistency in methodologies used throughout the County, stormwater management facilities shall be designed using a rainfall-runoff model, "HEC-1, Flood Hydrograph Package," and "HEC-2, Water Surface Profiles," by the U.S. Army Corps of Engineers.

In accordance with paragraph B. above, the developer must define downstream property owners (damage center) that would be affected by increased runoff. Therefore, the above model must encompass sufficient downstream areas to allow definition of increases in terms of volume and peak discharge for the one through 100 year storm/flood events.

In the event that the proposed development individually or in combination with approved future development scenarios increases the frequency and/or duration of existing flooding problems or creates new flooding problems, the developer will define solutions to such problems. Typical solutions may include but are not limited to the following:

1. Regionalized detention/retention—either on- or off-site facilities which reduce total basin runoff at the damage centers.

2. Environmentally-acceptable channel improvements.

   a. High flow side channels—Channels separate from the mainstream channel except at the entrance and exit, with an invert elevation set to prevent normal flows from entering.



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b. Channel cutoffs—Same as above except at large bends in streams.

c. In Channel, one sided enlargements—Enlargements that are constructed on one side of the channel with inverts above normal flows. Such channels typically remove tree canopy on one side of the channel. The side selected for enlargement must consider the sun angle in order to prevent unduly increasing stream temperature. Mitigating canopy must be planted as specified in Section 7112.c. to replace the original growth.

d. Clearing and snagging—Such work typically includes removal of debris, sediment bars and growth in the channel invert. This work can only be performed as outlined in "Stream Obstruction Removal Guidelines," dated 1983, prepared by the Wildlife Society and American Fisheries Society.

e. Flooding easement—In rare cases, increases in duration and/or frequency of flooding may be mitigated by the developer purchasing an easement (right to flood) from the affected property owner(s). Such a purchase of easement must be approved by the County Attorney at the request of the County Planning Director and by the Planning Commission.

E. Design Regulations. All detention facilities and improvements required by this Section shall comply with the following regulations.

1. Storage Volumes. Storage may be provided by wet or dry bottom basins or reservoirs or rooftop storage facilities.

2. Outlet Control Structures. Outlet control structures shall be designed as simply as possible and shall operate automatically. They will be designed to limit discharges into existing or planned downstream channels or conduits so as not to extend existing flow off the site in its natural conditions.

3. Spillway. Emergency overflow facilities shall be provided unless inflow is controlled to divert flows when the basin is at capacity.

4. Dry Bottom Basin. For basins designed without permanent pools:

a. Interior Drainage. Provisions must be made to facilitate interior drainage. These must include the provision of natural grades to outlet structures, longitudinal and transverse grades to perimeter drainage facilities, or the installation of subsurface drains.

b. Multipurpose Features. These may be designed to serve secondary purposes for recreation, open space, or other types of use which will not be adversely affected by occasional or intermittent flooding.



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c. Cleaning. The basins shall be designed for periodic cleaning and removal of sediments, which shall be removed from the site or otherwise disposed of in an appropriate manner.

5. Wet Basins. For basins designed with permanent pools:

a. Depth for Fish. If fish are used to help keep the basin clean, at least one-quarter (.25) of the area of the permanent pool must have a minimum depth of ten (10) feet.

b. Facilities for Emptying. For emergency purposes, cleaning, or shoreline maintenance, facilities shall be provided or plans prepared for the use of auxiliary equipment to permit emptying and drainage.

c. Pollution Abatement. Aeration facilities may be required when the quality of the influent and detention time would result in a lowering of dissolved oxygen content in the basin.

d. Slopes. Approach slopes shall be at least six to one (6:1) but not more than three to one (3:1) and shall be at least four (4) feet to six (6) feet wide and slope gently toward the basin. The side slopes shall be of non-erosive material with a slope of 1:1 or flatter. The ledge shall be four (4) feet to six (6) feet wide and slope gently toward the shore to prevent people or objects from sliding into deep water. There shall be a freeboard to twelve (12) to eighteen (18) inches above the high-water elevation on all retention basins. Alternate designs for side slopes may be considered under special circumstances where good engineering practice is demonstrated.

e. Cleaning. The basins shall be designed to include sediment traps in all inlets. Sediment traps shall be designed to permit periodic cleaning and maintenance. A basin maintenance plan shall be developed to ensure that the design depths of the basin will remain over time.

6. Building Regulations.

a. Rooftop Storage. Detention storage requirements shall be either in total or in part by detention on flat roofs. Design specifications of such detention shall be a part of the application for a zoning certificate. These specifications shall include the depth and volume of storage, design of outlet devices and down drains, elevations of overflow scuppers, design loadings for the roof structure, and emergency overflow provisions. Rooftop storage shall not be permitted to drain directly into sanitary sewers or streets.

b. Parking Lot Storage. Paved parking lots may be designed to provide



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temporary detention storage of stormwater on a portion of their surfaces not to exceed twenty-five (25) percent. Outlets shall be designed to empty the stored waters slowly, and depths of storage must be limited so as to prevent damage to parked vehicles. Storage areas shall be posted with warning signs and shall be designed to fill to maximum depth in not less than two (2) hours.

c. Detention Storage. All or a portion of the detention storage may also be provided in underground detention facilities.

7. Any development which is adjacent to a ravine or ravine buffer and which has in excess of three thousand two hundred (3,200) square feet of impervious surface shall provide evaporative storage for control of a one (1) inch rainfall on those surfaces.

8. Any development which is adjacent to a ravine or ravine buffer and which has an impervious surface ratio in excess of one-half (.5) shall provide evaporative or other storage for control of a two (20 inch rainfall on those surfaces.

9. Retention in floodplains shall be permitted only in depressional floodplain areas. Retention shall not be permitted in riverine floodplains.

F. Maintenance of Facilities. Responsibilities of the developer shall be:

1. to maintain all improvements until such time as eighty (80) percent of the development is completed and occupancy permits are issued or eighty 980) percent of the lots in the development have been sold.

2. to receive final approval, final inspection and a certificate of compliance from the County.

G. Inspection of Facilities

1. The developer's engineer shall be required to inspect all drainage facilities under construction and certify their compliance with approved plans.

2. A registered engineer, employed by the County, may inspect all drainage facilities while under construction.

3. When facilities are not constructed according to approved plans, the County has the explicit authority to compel compliance and require correction of any situations which are not according to the approved plans.



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H. Permit Required for Certain Facilities

A permit issued by the State of Tennessee shall be required for the approval of all stormwater management structures exceeding twenty (20) feet in height and/or a storage area of twenty-five (25) acres.

I. Ultimate Rainfall-Runoff Modeling Goal

It is the goal of the County to develop a comprehensive rainfall-runoff model for the entire Harpeth River Basin. Such a model would be used to define locations of required detention/retention basins or channel improvements and locations where such basins may adversely affect runoff by unduly delaying peak discharge to coincide with mainstream peaks. Once a comprehensive basin model has been developed, design procedures may be revised.

J.* If, in the determination of the County Engineer or other applicable regulatory agency using appropriate calculations, detention of stormwater onsite is unnecessary or could cause adverse effects to the overall hydraulic system, an alternative proposal may be considered. Alternatives may be one of the following, but shall not be limited to, the items listed below:

1. Assessment of property owner (developer) for dollar amount required to construct appropriate detention facility. (Assessment shall be based on land values, total acreage contributing to watershed, area required for facility, construction cost or other predetermined adverse impact on overall hydraulic system.)

2. Performance of hydrologic study (HEC-1 and HEC-2 analysis) on affected watershed. Performance of such study shall be under the approved guidelines (as required by the County Engineer) and shall be performed by a licensed professional engineer having experience in such analyses.

   This alternative is consistent with and is intended to augment the stated goal as described in Item I.

SECTION 7230. SOIL EROSION AND SEDIMENTATION CONTROL

A. In order to prevent both soil erosion and sedimentation, a soil erosion and sedimentation control plan shall be required as a part of an application for a zoning certificate (see Division 9200) whenever:

1. A development involving any clearing, grading, transporting, or other form of disturbing land by movement of earth, including the mining of minerals, sand and gravel (to the extent that such mining is subject to regulation by the County) results in one of the following:



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a. excavation, fill, or any combination thereof will exceed five hundred (500) cubic yards;

b. fill will exceed three (3) feet in vertical depth at its deepest point as measured from the natural ground surface;

c. excavation will exceed four (4) feet in vertical depth at its deepest point as measured from the natural ground surface;

d. excavation, fill, or any combination thereof will exceed an area of five thousand (5,000) square feet;

e. plant and/or tree cover is to be removed from an area exceeding five thousand (5,000) square feet on any parcel of land;

Specifically exempted from the requirement of a soil erosion and sedimentation control plan are farming or other agricultural uses which the County is not empowered to regulate.

2. Whenever any land located in a stream, stream channel, or body of water is disturbed, a soil erosion and sedimentation control plan shall be provided.

B. Definitions. For the purposes of this Section:

1. Soil erosion shall mean any removal and/or loss of soil by the action of water, ice gravity, or wind. Erosion includes both the detachment and transport of soil particles.

2. Sedimentation shall mean the settling out of the soil particles which are transported by water or wind. Sedimentation occurs:

a. when the velocity of water or wind in which soil particles are suspended is slowed to a sufficient degree and for a sufficient period of time to allow the particles to settle out of suspension, or

b. when the degree of slope is lessened to achieve the same result.

3. Erodible slope shall mean all slopes with inclines in excess of four (4) percent.

4. Large flat surface area (unpaved) shall mean an area which is flat or whose slope is less than four (4) percent and which consists of more than one thousand (1,000) square feet of exposed soil.



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C. Soil erosion and sedimentation control measures for all areas shall be provided to achieve maximum protection of all disturbed land masses. General measures include minimizing water runoff, amounts and velocities, and retaining sedimentation within the development site as early as possible following disturbances. Specific measures include:

1. Erodible Slopes: prevent detachment and transportation of soil particles from slope.

2. Streams, Streambeds, Streambanks, Bodies of Water, Lake Shorelines: prevent detachment and transportation of soil particles.

3. Drainageways: prevent detachment and transportation of soil particles (which would otherwise deposit in streams, bodies of water, or wetlands); promote deposit or sediment loads (traversing these areas) before these reach bodies of water.

4. Land Adjacent to Streams, Ponds, Lakes, and Wetlands prevent detachment and transportation of soil particles.

5. Enclosed Drainage Structure; prevent sedimentation in structure, erosion at outfall of system, and deposit of sediment loads within system or beyond it.

6. Large Flat Surface Areas (Unpaved): prevent detachment of soil particles and their off-site transportation.

7. Impervious Surfaces: prevent the detachment and transportation of soil (in response to an increase in the rate and/or volume of runoff of the site or its concentration caused by impervious surfaces).

8. Borrow and Stockpile Areas: divert runoff from face of slopes which are exposed in the excavation process; convey runoff in stabilized channels to stable disposal points; leave borrow areas and stockpiles in stable condition.

9. Adjacent Properties: prevent their being eroded and/or deposited with sediment.



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DIVISION 7300. LANDSCAPING STANDARDS

Landscaping is required on lots, in parking areas, in open spaces and as buffers around certain specified uses or between zoning districts. The landscaping standards of Sections 7310 through 7350 cover these requirements.

Landscaping requirements for individual non-residential uses or expansions to existing non-residential uses and conversions of residential structures to commercial uses (less than 15% of existing square footage) shall be applicable only to the portion of the site affected by the use.

A. Bonding requirements for landscaping improvements shall be set as follows:

1. If total value of landscaping requirements is $2,500.00 or less, or two plant units or less, then an Affidavit of Compliance will be required in lieu of a second bond.

2. If total value of landscaping requirements is over $2,500.00, then a bond will be required which must be reviewed and set by the Planning Commission.

3. For existing vegetation used in calculation of landscaping requirements, and to reduce bonding requirements provided the following procedures must be followed:

a. An existing vegetation site preservation plan must be submitted with the landscaping and historic site plan at the Preliminary Plat. This plan must show protective, temporary fencing for vegetation and/or historic sites to be preserved, hauling roads and equipment storage areas.

b. The Planning Commission will determine what areas may still be affected by construction activity and set a bond on those portions of the site so affected to cover replacement costs at the level required by the Ordinance.

c. Construction plans must contain vegetation protection details and no site preparation activity may commence until these requirements are met. The Planning Staff may issue a Site Preparation Permit after the Preliminary Plat has been approved and all these requirements are approved and bonded as needed.

B. Any applicant in disagreement with a Staff decision on landscaping requirements or bonding may appeal that decision to the Planning Commission.

C. Public Buildings must meet the standards of the Ordinance for landscaping. However, in the interest of working with usually tight budgeting constraints of public facilities, the following procedure may be followed in meeting these standards.

A two-phase landscaping plan may be submitted. The first phase must include all road entrances, peripheral building entrance and fifty percent (50%) of the residual lot,



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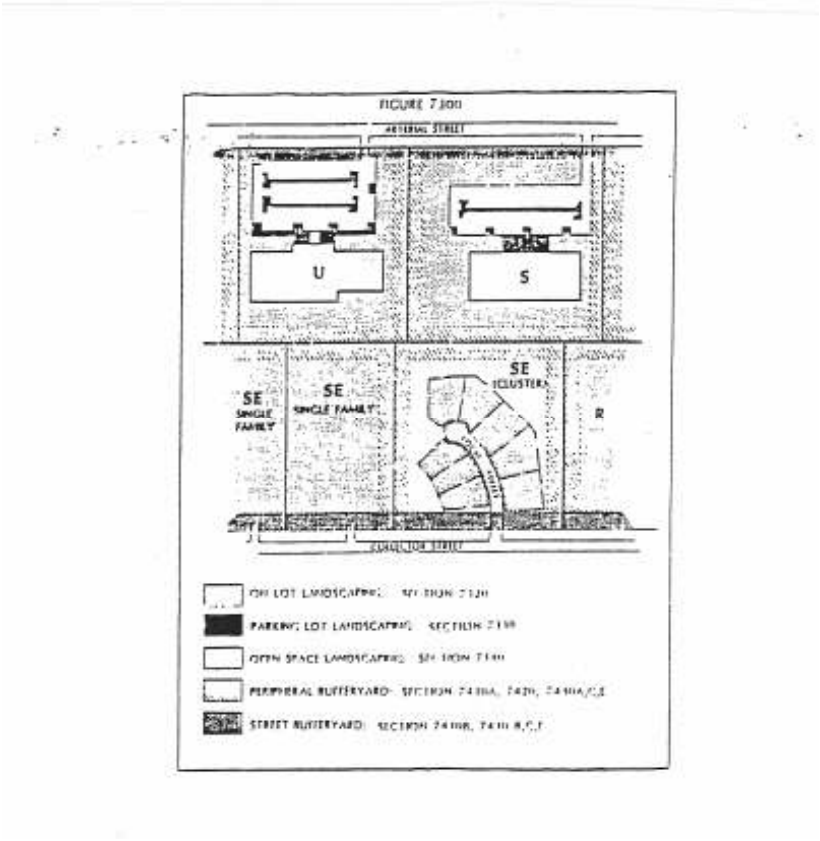
building and parking area landscaping. The second phase with the residual fifty percent (50%) required landscaping must be installed within five (5) years of the completion of the structure.



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## SECTION 7310. STANDARD PLANT UNITS

All landscaping requirements, except reforestation requirements, are stated in terms of the number of standard plant units required. This Section defines the standard plant unit and its alternatives. All landscaping shall conform to one or more of the plant unit alternatives of this Section

The following page specifies alternative plant units that may be used for bufferyards, general landscaping, and for parking areas. In general, the five alternative plant mixes are interchangeable, but Alternative E is best suited for the interior of parking lots. In other cases, where a year-round screen is required, Alternatives #C or #D are preferred and may even be specified.

Detailed information on plant species is provided in Section 7430 G.



*=See Amendments List
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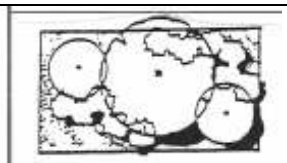
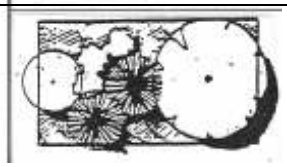
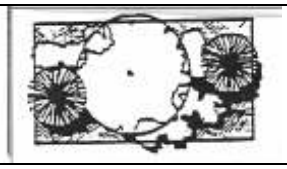
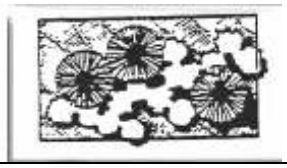
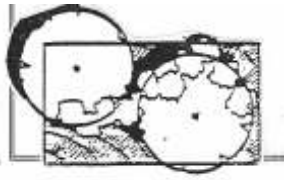
Table 7310

Plant Unit Alternative

| | | QUANTITY REQUIRED | SIZE AND TYPE OF PLANT * |
|---|---|---|---|
|  | Alternative Unit A | 1<br>2<br>11 | 4" caliper Canopy Tree<br>2" caliper Understory Tree<br>3' high Shrubs** |
|  | Alternative Unit B | 1<br>1<br>3<br>2 | 4" caliper Canopy Tree<br>2" caliper Understory Tree<br>3' high Shrubs**<br>6' high Evergreen Trees |
|  | Alternative Unit C | 1<br>9<br>2 | 4" caliper Canopy Tree<br>3' high Shrubs**<br>8' high Evergreen Trees |
|  | Alterative Unit D | 3<br>14 | 8' high Evergreen Trees<br>3' high Shrubs** |
|  | Alternative Unit E | 2<br>10 | 4" caliper Canopy Tree<br>3' high Shrubs** |

* See Section 7440

** One foot (1') shrubs may be substituted for on lot landscaping requirement (particularly bedding areas adjacent to structures) but not in peripheral or street bufferyards.



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SECTION 7320. LANDSCAPING STANDARDS FOR LOTS

This Section requires that each residential and nonresidential lot contain a minimum amount of landscaping in those areas not designated as parking areas, bufferyards or buildings. Residential lots of record existing as of the effective date of this Ordinance shall be exempt from the requirement of this Section. For each acre of land not occupied by building, parking areas, or bufferyards the number of plant units as described in Section 7310 shall be planted. In the case of residential buildings, the requirement shall be for ever lot or dwelling unit, whichever is greater. Landscaping standards for lots are not required for minor subdivisions and agricultural subdivisions unless they are located on major arterials. Landscaping standards are not required for agricultural uses.

| District and Use | Number of Plant Units* |
|---|---|
| RURAL (R) | |
| agriculture | none |
| agricultural support | as determined in conditional use permit |
| residential | none |
| all others | 2/acre* |
| ESTATE (E) | |
| residential | none |
| all others | 3/acre* |
| SUBURBAN ESTATE (SE) | |
| residential | 2/lot or du. |
| all others | 3/acre* |
| SUBURBAN (S) INTERCHANGE (IC) and URBAN (U) | |
| residential | 1/lot or du. |
| institutional | 3/acre* |
| all others | 4/acre* |
| CROSSROADS CENTER (CC) | |
| agricultural support | as determined in conditional use permit |
| residential | 1/lot or du. |
| commercial | 3/acre* |
| MOBILE HOME (MH) | 1 lot or du. |
| RESTRICTED SINGLE-FAMILY (RS) | 1/lot or du. |

* The higher value is required if there is an adjoining residential use.



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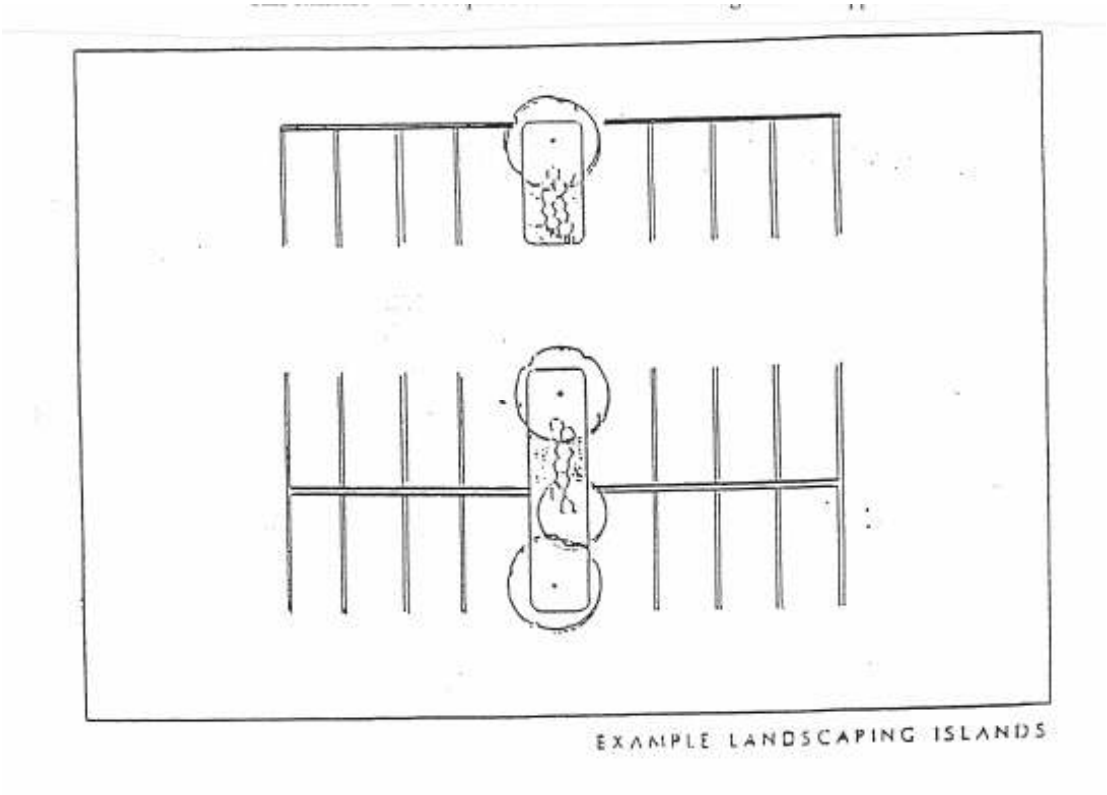
SECTION 7330. LANDSCAPING STANDARDS FOR PARKING LOTS

This Section requires that each residential and nonresidential parking lot contain a minimum amount of landscaping within the parking lots and adjoining entrance drives and circulation drives. The requirement provides that a certain number of land-scape plant units (See Section 7310.) shall be planted per twenty-four (24) parking spaces.

Agricultural uses are not required to provide any landscaping within parking areas. The following illustrations describe the standards for the different land uses.

A. 1.5 PLANT UNITS AND 486 SQ. FT. OF LANDSCAPED AREA REQUIRED PER 24 PARKING SPACES.

This standard will be required for all residential and agricultural support uses.



EXAMPLE LANDSCAPING ISLANDS



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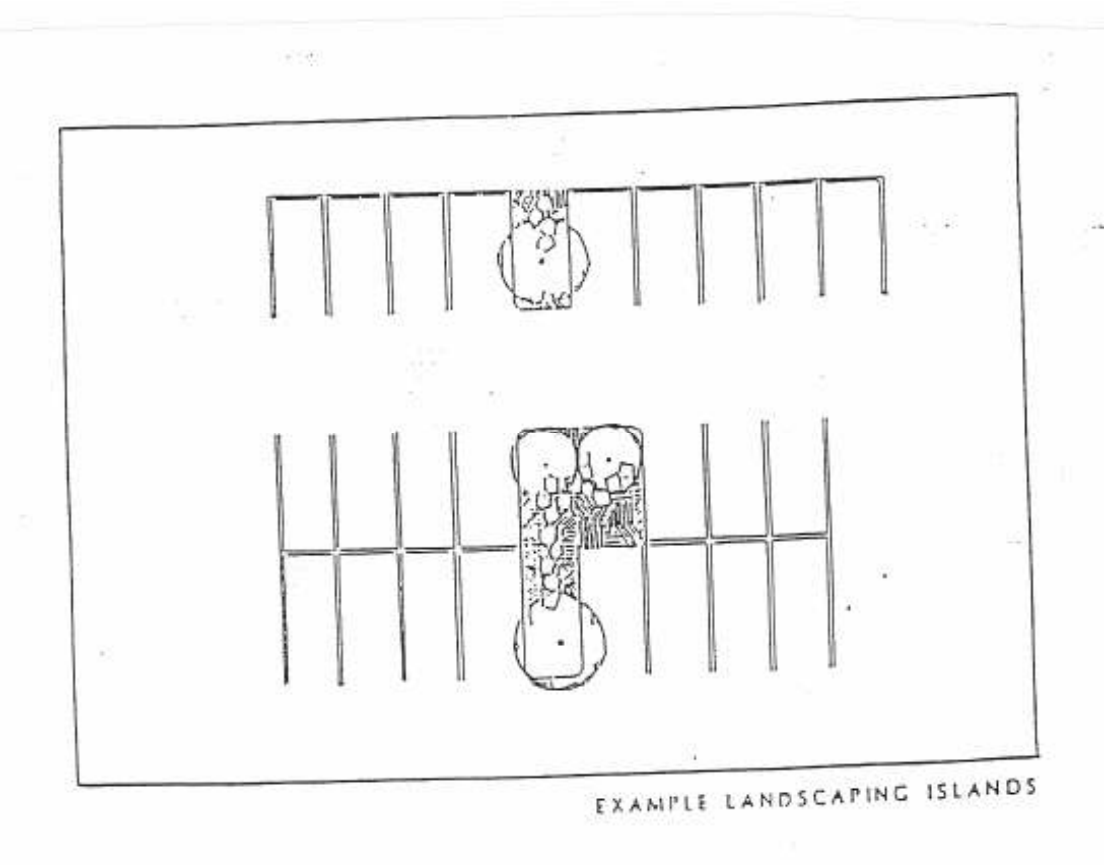
B. 2.0 PLANT UNITS AND 648 SQ. FT. OF LANDSCAPED AREA REQUIRED PER 24 PARKING SPACES.

This standard will be required for all uses in the MOBILE HOME (MH) and RESTRICTED SINGLE-FAMILY (RS) Districts.



EXAMPLE LANDSCAPING ISLANDS



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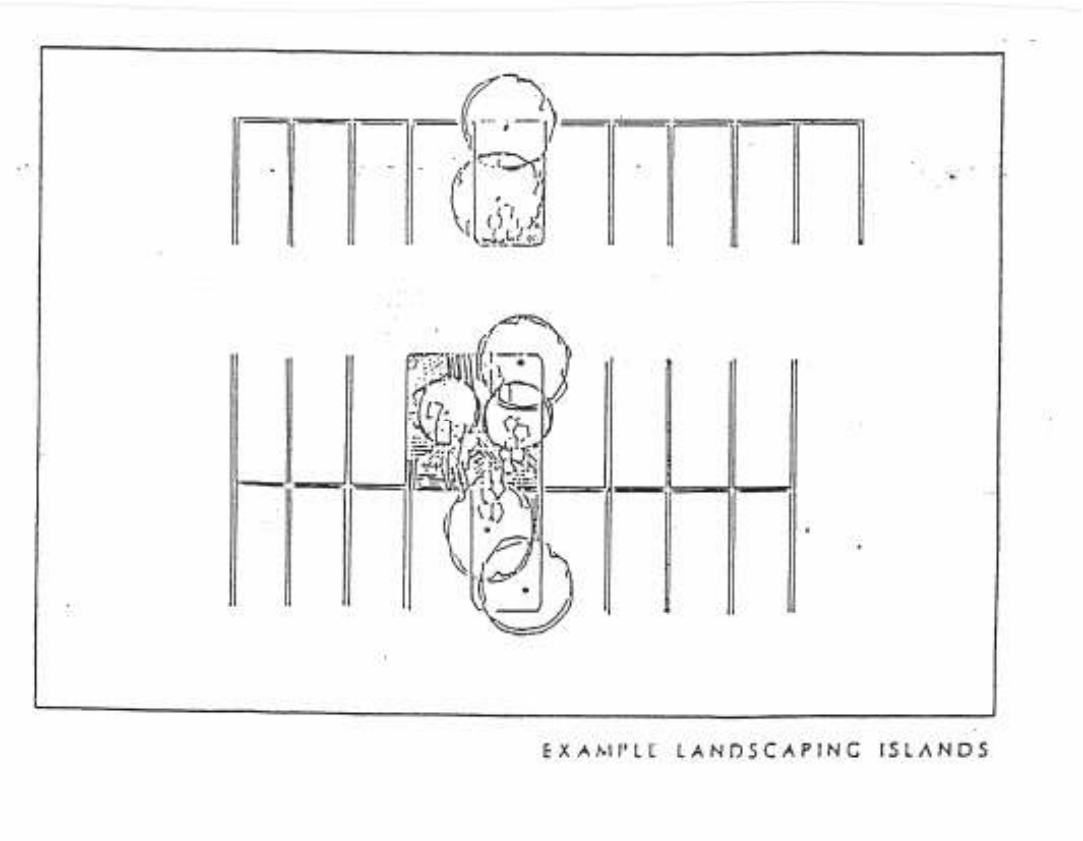
C. 2.5 PLANT UNITS AND 810 SQ. FT. OF LANDSCAPED AREA REQUIRED PER 24 PARKING SPACES.

This standard will be required for all nonresidential uses in the URBAN (U) and CROSSROADS CENTER (CC) Districts.



EXAMPLE LANDSCAPING ISLANDS



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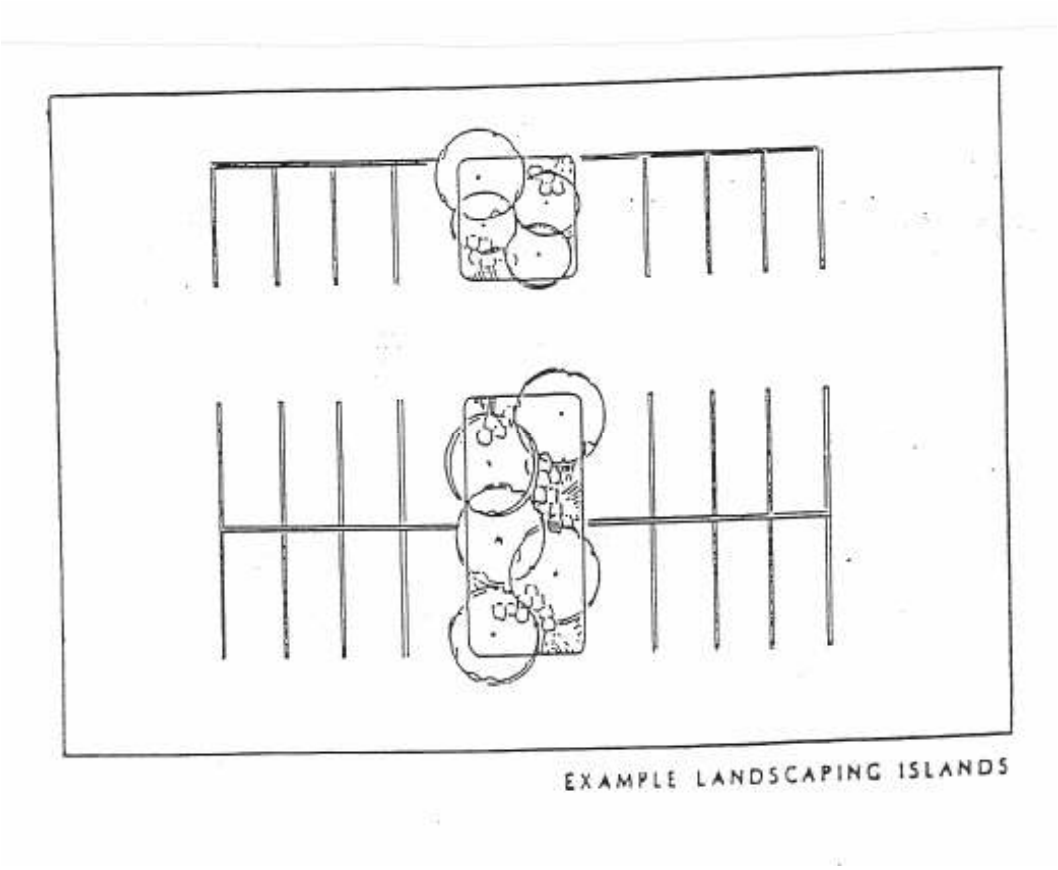
D. 3.0 PLANT UNITS AND 972 SQ. FT. OF LANDSCAPED AREA REQUIRED PER 24 PARKING SPACES.

This standard will be required for all uses, other than residential, agricultural support uses, in the R, E, SE, and S Districts.



EXAMPLE LANDSCAPING ISLANDS



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## SECTION 7340. LANDSCAPING STANDARDS FOR REQUIRED OPEN SPACES

All areas required to be left as open space by Sections 5110, 5120, and 5210 that are not presently in agricultural use, forested, or grasslands, or required to be planted as forest or grasslands, shall contain a minimum amount of landscaping within the remaining designated open space areas. Each acre of remaining designated open space shall be planted with a minimum of two (2) plant units as described in Section 7310. In addition, adequate ground cover shall be provided. Each area of designated open space that serves as a buffer area between lots in an RCD or PRCD development shall submit a specific landscaping plan and/or use plan for the open space. If it is solely to be used as a buffer area, it shall be planted with a minimum opacity of 0.4 (as described in Section 7430, Table 7430 E2).



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## DIVISION 7400. BUFFERYARD PERFORMANCE STANDARDS

A bufferyard is a combination of setback and visual buffer or barrier. It includes a yard or area together with the planting and/or barrier that are required to eliminate or reduce existing or potential nuisances. These nuisances can occur between adjacent zoning districts, between different development options within the same zoning district, along roads, or between uses. Potential nuisances are dirt, litter, noise, glare of lights, signs, and unsightly buildings or parking areas, or to provide spacing to reduce adverse impacts of noise, odor, or danger from fires or explosions.

> Commentary: One of zoning's most important functions is the division of land uses into districts which have similar character and contain compatible uses. In theory, the location of districts is supposed to provide protection, but in Williamson County, this is not the case since uses as diverse as single-family residential and commercial uses were located next to one another long before this Ordinance was adopted. Bufferyards will operate to minimize the negative impact of any future use on neighboring uses.

## SECTION 7410. BUFFERYARD REQUIREMENTS

Bufferyards shall be located along the outer perimeter of a lot or parcel, and shall extend to the lot or parcel boundary line. Bufferyards shall not be located on any portion of an existing or dedicated public or private street or right-of-way.

To determine the type of bufferyard required on a parcel or between two parcels or between a parcel and a street, the following procedures shall be used:

A. For Peripheral Bufferyards

1. Identify whether any portion or property line of the site constitutes a zoning district boundary or a boundary where different development options abut one another. If it does not, a peripheral bufferyard is not required. If it does, determine the zoning district on both sides of the boundary.

2. Use Table 7430 E.1. to determine the level of opacity required for the peripheral bufferyard for each zoning district or development option boundary (or segment thereof) of the subject parcel.

3. Calculate the required number of plants.

    a. Use Table 7430 E2 to select the combination of bufferyard width, intensity of vegetation, and/or barrier to be used to reach the required level of opacity listed in Table 7430 E1. Not the required number of plant units from the option selected.

b. Select a standard plant unit option from Section 7310.

c. Multiply the number of required plant units selected from Table 7430 E2 by the number of required plant types per one hundred (100) feet listed for the selected plant unit option from Section 7310. These numbers represent the required number of trees and shrubs per one hundred (100) feet for the bufferyard option selected.

d. Divide the length of the required bufferyard by one hundred (100) feet to determine the bufferyard length multiplier.

e. Multiply the bufferyard length multiplier by the number of required trees and shrubs per one hundred (100) feet calculated in Step c, above. These numbers represent the total required plant materials for the selected bufferyard options.

4. Use Table 7430 G to select the species of trees and shrubs to be placed in the bufferyard.

5. Determine whether the land on the adjoining property is vacant or developed. Apply the decision rules for the responsibility of installation of required Peripheral Bufferyards presented in Section 7420.

6.* If a proposed major residential subdivision with densities greater than on (1) unit per three (3) acres is adjacent to a parcel of fifteen (15) acres or greater being actively armed (i.e., row crops or pastured livestock) then the subdivision shall be required to install a barrier fencing along the length of the affected property line.

The type and height of the fencing to be installed shall be subject to the approval of the Planning Commission. The standards for determining the type and height are as follows:

a. A chain link fence or stockade type fence each with a minimum of four (4) feet in height shall be installed for all agricultural uses except where the subdivision is adjacent to an Intensive Agricultural use.

b. Stockade type fencing six (6) feet high shall be used if adjacent to Intensive Agricultural uses.

c. If there are extreme natural topographic barriers or other mitigating circumstances, the Planning Commission shall have the authority to waive the fencing requirement.



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To insure that agricultural operations are identified, the Planning Staff shall notify adjacent property owners with lots greater than fifteen (15) acres prior to site plan review by the Planning Commission.

7.* Peripheral Bufferyard Treatments Within Planned Resource Conservation Developments (PRCDs) and Resource Conservation Developments (RCDs)

In addition to opacity requirements, PRCDs and RCDs are required to maintain a minimum of 50' peripheral bufferyard contained within required open space betweenany proposed lots and adjacent properties (see Table 7430. E.1.)

B. For Street Bufferyards

1. Use Table 7430 F1 to determine the required bufferyard for the street(s) which the subject property has front age on.

2. Use Table 7430 F2 to identify the required number of trees and shrubs for each one hundred (100) lineal feet of street buffer.

3. Divide the lineal street frontage of the site by one hundred (100) feet to determine the bufferyard length multiplier.

4. Multiply the bufferyard length multiplier by the number of trees and shrubs required per one hundred (100) feet as determined in Step 2, above. These numbers represent the total required plant materials for the street bufferyard.

5. Use Table 7430 G to select the species of trees and shrubs to be placed in the bufferyard.



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## SECTION 7420. RESPONSIBILITY FOR INSTALLATION OF PERIPHERAL BUFFERYARDS

Peripheral Bufferyards shall be installed on the subject property at the time of its development. Existing plant material which meets the requirements of Section 7310 and which will be preserved on the subject property following the completion of development, may be counted as contributing to the required bufferyard.

Bufferyard installation responsibilities are influenced by the nature of the parcel abutting the subject property. Two potential situations exist. The first involves the subject (developing) property abutting a vacant or developing parcel. The second involves the subject (developing) property abutting a previously developed parcel. The requirements for bufferyard installation differ between these situations.

A. Abutting a Vacant or Developing Parcel

1. When a proposed use adjoins a vacant or developing parcel for which a bufferyard is required by the presence of a zoning boundary, that use shall provide one-half (.5) of the bufferyard width and materials that are required by Table 7430 E1 as selected from one of the options for the required level of opacity presented in Table 7430 E2.

2. The second use to develop shall, at the time it develops, provide all additional material and land necessary to provide the total bufferyard required between those two (2) uses. A different bufferyard option may be selected to complete the full bufferyard requirements provided that the option selected meets or exceeds one half (.5) of the required opacity of the total bufferyard.

B. Abutting a Previously Developed Parcel

If the adjoining use had developed without a bufferyard, the proposed use shall be responsible for installing the total required bufferyard.

C. Abutting Active Agricultural Uses (see 7410. A. 6.)



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## SECTION 7430. REQUIRED PERIPHERAL BUFFERYARD AND STREET BUFFERYARD STANDARDS

A. Peripheral Bufferyards are based on a required opacity value. A variety of combinations of bufferyard width, planting intensity and structural options (such as fences or berms) may be selected to reach the required opacity value.

B. Street Bufferyards have more specific standards, with one combination of width and planting intensity available for each listed bufferyard.

C. Calculation of Bufferyard Requirements.

1. Bufferyard requirements are calculated using the standards listed in this Subsection for each or the Peripheral and Street Bufferyards specified in Tables 7430 E1 and 7430 F1.

2. Bufferyard standards listed in the Subsection are for every one hundred (100) lineal feet of zoning district and/or development option boundary, and/or street frontage present on a given lot.

3. In instances where the peripheral boundary and/or street frontage does not equal one hundred (100) feet, the required bufferyard planting shall be based on the percentage of one hundred (100) feet that is present along district boundaries and/or street frontage.

D. Plant Materials

1. The vegetation required for each type of bufferyard is discussed in detail in Section 7430G.

2. Any existing plant material which otherwise satisfies the requirements of this Section may be counted towards satisfying all such requirements.

3. All bufferyard areas shall be seeded with lawn or native ground cover unless such vegetation is already fully established.

4. The exact placement of required plants and structures shall be decision of each user, except that the following requirements shall be met:

a. Evergreen shrubs shall be planted in clusters in order to maximize their chance for survival.

b. Where a combination of plant materials and fencing is used in a peripheral bufferyard, the fence shall be located to the interior or the most intensive



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district and the plant material shall be located toward the less intensive use.

c. A developer may establish through a written and recorded agreement that the property owner(s) immediately adjacent to his property agree to provide a portion or all of the required bufferyard on immediately adjacent portions of their land, thereby exempting the developer from providing all or a portion of the required bufferyard on his property.

E. Peripheral Bufferyards

The opacity values contained in the Table 7430 E1 refer to the bufferyard requirements and standards contained in the Table of Peripheral Bufferyard Standards (Section 7430 E2) that are required along adjacent zoning districts or between different development options within the same zoning district.



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The following table depicts the various combinations of plant materials (by plant unit, refer to Section 7310), bufferyard width and structures necessary to reach given levels of opacity as required by Table 7430.

TABLE 7430 E2

PERIPHERAL BUFFERYARD STANDARDS

| Opacity | Number of Plant Units | Width | Required Structure |
|---|---|---|---|
| 0.05 | .00 | 10’ | min. 44” picket fence |
| | .00 | 10’ | min. 4’ wood rail fence |
| | .40 | 10’ | - |
| | .36 | 15’ | - |
| | .33 | 20’ | - |
| | .31 | 25’ | - |
| | .29 | 30’ | - |
| 0.10 | .00 | 10’ | min. 44” picket fence |
| | .38 | 10’ | min. 4’ wood rail fence |
| | .91 | 10’ | - |
| | .80 | 15’ | - |
| | .73 | 20’ | - |
| | .68 | 25’ | - |
| | .65 | 30’ | - |
| | .62 | 35’ | - |
| | .00 | 35’ | min. 4’ berm |
| 0.20 | .00 | 10’ | min. 6’ stockade fence |
| | .84 | 10’ | min. 44” picket fence |
| | 1.33 | 15’ | min. 4’ wood rail fence |
| | 1.98 | 15’ | - |
| | 1.73 | 20’ | - |
| | 1.58 | 25’ | - |
| | 1.49 | 30’ | - |
| | 1.40 | 35’ | - |
| | .10 | 35’ | min. 4’ berm |
| | 1.35 | 40’ | - |
| | .00 | 40’ | min. 5’ berm |



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TABLE 7430 E2
PERIPHERAL BUFFERYARD STANDARDS (cont.)

| Opacity | Number of Plant Units | Width | Required Structure |
|---|---|---|---|
| | .00 | 10’ | min. 6’ stockade fence |
| | 1.98 | 15’ | min. 44” picket fence |
| | 3.20 | 20’ | - |
| | 2.40 | 20’ | min. 4’ wood rail fence |
| | 2.76 | 25’ | - |
| | 2.52 | 30’ | - |
| | 2.35 | 35’ | - |
| 0.30 | 1.04 | 35’ | min. 4’ berm |
| | 2.23 | 40’ | - |
| | .44 | 40’ | min. 5’ berm |
| | 2.15 | 45’ | - |
| | 2.09 | 50’ | - |
| | .00 | 50’ | min. 6’ berm |
| | .00 | 10’ | min. 8’ stockade fence |
| | .53 | 10’ | min. 6’ stockade fence |
| | 3.30 | 20’ | min. 44” picket fence |
| | 4.40 | 25’ | - |
| | 3.62 | 25’ | min. 4’ wood rail fence |
| | 3.85 | 30’ | - |
| | 3.49 | 35’ | - |
| 0.40 | 2.08 | 35’ | min. 4’ berm |
| | 3.27 | 40’ | - |
| | 1.48 | 40’ | min. 5’ berm |
| | 3.10 | 45’ | - |
| | 2.99 | 50’ | - |
| | .56 | 50’ | min. 6’ berm |
| | .19 | 10’ | min. 8’ stockade fence |
| | 1.35 | 15’ | min. 6’ stockade fence |
| | 5.64 | 30’ | - |
| | 4.05 | 30’ | min. 44” picket fence |
| | 4.92 | 30’ | min. 4’ wood rail fence |
| | 4.99 | 35’ | - |
| | 3.19 | 35’ | min. 4’ berm |
| 0.50 | 4.54 | 40’ | - |
| | 2.61 | 40’ | min. 5’ berm |
| | 4.22 | 45’ | - |
| | 4.05 | 50’ | - |
| | 1.60 | 50’ | min. 6’ berm |
| | 3.88 | 55’ | - |
| | 3.74 | 60’ | - |



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| | | | |
|---|---|---|---|

TABLE 7430 E2

PERIPHERAL BUFFERYARD STANDARDS (cont.)

| Opacity | Number of Plant Units | Width | Required Structure |
|---|---|---|---|
| 0.60 | .44 | 15’ | min. 8’stockade fence |
| | 2.21 | 20’ | min. 6’ stockade fence |
| | 4.33 | 35’ | min. 4’ berm |
| | 5.41 | 35’ | min. 44” picket fence |
| | 6.30 | 35’ | min. 4’ wood rail fence |
| | 6.26 | 40’ | - |
| | 3.79 | 40’ | min. 5’ berm |
| | 5.70 | 45’ | - |
| | 5.25 | 50’ | - |
| | 2.70 | 50’ | min. 6’ berm |
| | 5.00 | 55’ | - |
| | 4.80 | 60’ | - |
| 0.80 | 1.10 | 25’ | min. 8’ stockade fence |
| | 4.15 | 30’ | min. 6’ stockade fence |
| | 6.55 | 40’ | min. 4’ berm |
| | 6.27 | 45’ | min. 5’ berm |
| | 8.73 | 45’ | min. 44” picket fence |
| | 9.10 | 50’ | - |
| | 5.05 | 50’ | min. 6’ berm |
| | 8.09 | 50’ | min. 4’ wood rail fence |
| | 8.04 | 55’ | - |
| | 7.44 | 60’ | - |
| | 7.10 | 65’ | - |
| | 6.77 | 70’ | - |
| 1.00 | 3.76 | 30’ | min. 8’ stockade fence |
| | 6.36 | 40’ | min. 6’ stockade fence |
| | 7.32 | 50’ | min. 6’ berm |
| | 7.51 | 50’ | min. 5’ berm |
| | 8.67 | 55’ | min. 4’ berm |
| | 10.91 | 60’ | min. 44” picket fence |
| | 11.36 | 60’ | min. 4’ wood rail fence |
| | 10.83 | 65’ | - |
| | 9.94 | 70’ | - |
| | 9.34 | 75’ | - |
| | 8.92 | 80’ | - |



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F. Street Bufferyards. The letter code shown in Table 7430 C refers to street bufferyards described in the Table of Street Bufferyard Standards (Section 7430 D). For example, a "B" bufferyard is described in Table 7430 D as being fifteen (15) feet wide and containing two (2) plant units (as described in Section 7310) per one hundred (100) lineal feet.

1. When a street bufferyard is used to buffer the rear yards of a development from the street, the following standards shall apply. It must have a minimum opacity of .80 as defined in Table 7430 E 2. The depth of the bufferyard shall be governed by, and contained within, the required development setback as set in Table 7430 F 3. The setback shall be measured from the road right-of-way to the rear lot line of the applicable lots.

Table 7430 F1
STREET BUFFERYARDS

| Proposed Zoning District | Arterial Street | Collector Street | Local Residential Street | Other Street |
|---|---|---|---|---|
| for Residential Uses | | | | |
| R | A | - | - | - |
| E | A | - | - | - |
| SE, RS, CC, IC | B | A | - | - |
| S, NC, MH | C | B | A | A |
| U | C | B | B | B |
| for Nonresidential Uses | | | | |
| All Districts | B | B | C | B |

SECTION 7430 F.2.

2. Within a residential development, a street tree treatment may be substituted for a street bufferyard. For each one hundred (100) feet of road frontage (both sides, inclusive), a numerical value has been assigned in Table 7430 F4. Based on the values listed below, the street tree plan must meet or exceed that listed in Table 7430 F4:

| | |
|---|---|
| 4" caliper canopy tree | 1.0 |
| 2" caliper understory tree | 0.5 |

Canopy, understory or a combination of such is a permissible treatment.



*=See Amendments List
at the end of Article

Table 7430 F2

STREET BUFFERYARD STANDARDS

| Bufferyard | Number of Plant Units per 100 lineal feet | * Minimum Bufferyard Width | or alternate Bufferyard Opacity |
|---|---|---|---|
| A | 1 | 15 feet | 0.4 |
| B | 2 | 15 feet | 0.5 |
| C | 3 | 20 feet | 0.6 |

* If a bufferyard width is doubled, 0.5 plant unit per 100 feet may be deducted, down to a minimum of 0.5 plant units per 100 feet (applicable for the following categories in the Table of Uses 4002: Residential A, B, C, D; all Institutional Uses, Commercial I, J, K, S, U, W).

Table 7430 F3

DEVELOPMENT SETBACKS

| | R/E | MH/SE/IC | U/S/RS/CC |
|---|---|---|---|
| Residential (Single-Family) | 100’ | 75’ | 50’ |
| Residential (RCD) | 100’* | 150’ | 50’ |
| Residential (PRCD) | NA | 150’* | 75’ |
| Equestrian | 100’ | 100’ | 100’ |
| Multi-Family | NA | 200’ | 100’ |
| Large Lot | 100’ | 100’ | 100’ |

Table 7430 F4

| Zoning District | Arterial Street | Collector Street | Local Street | Other Street |
|---|---|---|---|---|
| R | 1.5 | | | |
| E | 1.5 | | | |
| SE, RS, CC, IC | 2.0 | 1.5 | | |
| S, NC, MH | 2.5 | 2.0 | 1.5 | 1.5 |
| U | 2.5 | 2.0 | 2.0 | 2.0 |



*=See Amendments List
at the end of Article

SECTION 7400. CLASSIFICATION OF PLANT MATERIALS

For the purpose of this Ordinance, plant materials are classified into four (4) groupings: canopy trees, understory trees, evergreen trees and shrubs. A partial list of species suitable for bufferyard use and compatible with Williamson County climate and soil conditions are listed in Table 7440., below. Additional information on trees and shrubs pertaining to their compatibility with landscapes, soils and climates, can be found in the following sources:

A. Native Trees, Shrubs, and Vines for Urban and Rural America, by Gary L. Hightshoe.

B. Publication No. 814, Agricultural Research Service, USDA – Plant List

C. Landscape Plants in Design, C. C. Martin, Jr.

Additionally, any plants with a proven record of success in Williamson County may be proposed. A good source for additional information would be member growers of the Tennessee Nurserymen's Association.

TABLE 7400

PLANT SPECIES

TYPE OF PLANT

Canopy Trees

| | |
|---|---|
| Acer Platanoides | Gymnocladue Dioicus |
| Norway Maple | Kentucky Coffee Tree |
| Acer Pseudoplatanus | Halesia Monticola |
| Sycamore Maple | Mountain Silverbell |
| Acer Rubrum | Juglans Regia |
| Red or Swamp Maple | English or Persian Walnut |
| Carya | Liquidambar Styraciflua |
| Hickory Species | Sweet Gum |
| Celtis Australis | Metasequoia Glyptostroboides |
| European Hackberry | Dawn Redwood |
| Celtis Laevigata | Nyssa Sylvatica |
| Sugar Hackberry | Black Gum or Black Tupelo |
| Fagus Grandifolia | Plantanum |
| American Beech | Plane Tree Species |
| Ginkgo Biloba | Populus |
| Ginkgo or Maidenhair Tree | Poplar Species |
| Gleditsia Triacanthos | Quercus |
| Common Honey-Locust | Oak Species |



*=See Amendments List
at the end of Article

Evergreen Trees

Ilex
Holly Species
Juniperus
Juniper Species
Magnolia Grandiflora
Southern Magnolia
Pinus
Pine Species
Pseudotsuga Menziesii
Douglas Fir
Thuja
Abor-vitae Species
Tsuga
Hemlock Species

Understory Trees

Acer Compestre
Hedge Maple
Acer Carpinifolium
Hormbeam Maple
Acer Ginnala
Amur Maple
Acer Palmatum
Japanese Maple
Aesculus Glabra
Ohio Buckeye
Amelanchier Grandiflora
Apple Serviceberry
Betula Poplifolia
Gray Birch
Carpinus Betulus Globosa
European Hornbeam
Carya Tomentosa
Mockernut
Cercis Siliquastrum
Judas Tree
Cornus Kousa
Japanese Dogwood
Cornus Mas
Cornelian Cherry
Prunus
Cherry Species
Quercus Marilandica
Black Jack Oak
Saliz Babylonica
Babylon Weeping Willow
Styrax
Snowbell Species
Cotinus Americanus
American Smoke Tree
Crataegus
Hawthorn Species
Elaeagnus Angustifolia
Russian Olive
Evodia Danielli
Korean Evodia
Franklinia Alatamaha
Franklinia
Halesia Carolina
Carolina Silverbell
Koelreuteria Paniculata
Golden Rain Tree
Laburnum
Laburnum Species



*=See Amendments List
at the end of Article

(continued)

Cornus Officinalis
Japanese Cornel
Magnolia Stellata
Star Magnolia
Malus
Crab Apple Species

Magnolia Soulangeana
Saucer Magnolia

Shrubs

Alnus serrulata
Common Alder
Amphora Fruticosa
Indigobush Amphora
Aronia Arbutifolia
Red Chokeberry
Calycanthus Floridus
Common Sweetshrub
Cornus Racemosa
Gray Dogwood
Dirca Palustris
Atlantic Leatherwood
Euonymus Obovatus
Running Euonymus
Hydrangrea arborescens
Smooth Hydrangea
Ilex Vertillata
Common Winterberry
Myrica Pensylvanica
Northern Bayberry

Pachistima Canbyi
Canby Pachistima
Pieris Floribunda
Mountain Pieris
Quercus Ilicifolia
Scrub Oak
Rohdodendron Arborscens
Sweet Azalea
Ribes Missouriense
Missouri Gooseberry
Rosa Setigera
Prairie Rose
Rubus Allegheniensis
Allegany Blackberry
Symphoricarpos Occidentalis
Western Snowberry
Vaccinium Corymbosum
Highbrush Blueberry
Viburnum Cassinoides
Witherod Viburnum

SECTION 7450. BUFFERYARD USE

A bufferyard may be used for passive recreation. It may contain pedestrian, bike, or equestrian trails provided that: (a) No plant materials is eliminated, (b) the total width of the bufferyard is maintained, and © all other regulations of the Ordinance are met. In no event, however, shall swimming pools, tennis courts, sports fields, golf courses, or other such uses be permitted in bufferyards.



*=See Amendments List
at the end of Article

AMENDMENTS

ARTICLE VII

| Section/Division | Date | Book/Page | Topic |
|---|---|---|---|
| 7120 E | 06-20-88 | 13/639 | Historic Site |
| 7320 | 06-20-88 | 13/639 | Landscaping |
| 7340 | 06-20-88 | 13/640 | Landscaping |
| 7320 | 09-19-88 | 14/65 | Landscaping |
| 7420 | 09-19-88 | 14/65 | Bufferyards |
| 7111C | 03-20-89 | 14/189 | Floodplains |
| 7120 D & E | 03-20-89 | 14/190 | Historic Sites |
| 7300 | 03-20-89 | 14/190 | Landscaping |
| 7310 | 03-20-89 | 14/191 | Plant Units |
| 7410 A - 7 | 03-20-89 | 14/192 | Bufferyards |
| 7430 F - 1 | 06-10-96 | 17/291 | Tree Calipers |
| 7430 F - 2 & 3 | 03-20-89 | 14/191 | Bufferyards |
| 7430 F - 4 | 06-10-96 | 17/291 | Bufferyards |
| 7440 | 03-20-89 | 14/191 | Plant Materials |
| 7120 A – 1 | 11-20-89 | 14/391 | Historic Sites |
| 7120 A – 1 | 11-20-89 | 14/392 | Historic Sites |
| 7220 J | 11-20-89 | 14/392 | Stormwater Runoff |
| 7430 E - 1 | 11-20-89 | 14/392 | Bufferyards |
| 7430 F – 2 | 11-20-89 | 14/392 | Bufferyards |
| 7430 F | 10-15-90 | 14/602 | Bufferyards |
| 7111 C-7, D | 11-08-93 | 16/169 | Floodplains |
| 7112 | 11-08-93 | 16/169 | Mature/Young Woodlands |
| 7430 F – 3 | 11-08-93 | 16/169 | Development Setbacks |
| 7320 | 11-08-99 | 19/379 | Interchange Overlay District |
| 7330 C | 11-08-99 | 19/379 | Interchange Overlay District |
| 7430 E 1 | 11-08-99 | 19/379 | Interchange Overlay District |
| 7430 F 1 | 11-08-99 | 19/379 | Interchange Overlay District |
| 7430 F 4 | 11-08-99 | 19/379 | Interchange Overlay District |
| 7111 | 07-11-05 | | Areas of Special Flood Hazard/Floodplains. |
| 7210 B. | 01/09/06 | | Septic Disposal Areas |



*=See Amendments List
at the end of Article